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[OFFICIAL NOTICE.]

Thirty-ninth Annual Meeting, New England Association of Gas Engineers.

NEW ENGLAND ASSOCIATION OF GAS ENGINEERS,
OFFICE OF THE SECRETARY,
EAST BOSTON, MASS., Jan. 21, 1909.

To the Members, New England Association of Gas Engineers: The Thirty-ninth Annual Meeting of the New England Association of Gas Engineers will be held at Young's Hotel, Boston, February 17th and 18th, 1909. The annual dinner will be on Wednesday evening, Feb. 17th. A programme full of promise is being arranged, details of which will be announced shortly. N. W. GIFFORD, Secretary.

[NOTICE OF MEETING.]

Fifth Annual Meeting, Illinois Gas Association.

ILLINOIS GAS ASSOCIATION,
OFFICE OF THE SECRETARY,
ELGIN, ILLS., Feb. 6, 1909.

The fifth annual meeting of the Illinois Gas Association will be held in Chicago, March 17 and 18. The Auditorium Hotel, which has been selected as headquarters, announces the following rates:

Single room, without bath	$2.00	and upward.
Double room, without bath	3.00	"
Single room, with bath	3.50	"
Double room, with bath	5.00	"

There are many first-class hotels near our headquarters, consequently all members will receive the best of accommodations. The following papers have been arranged for presentation at this meeting:

"A New Method of Gas Manufacture," by Mr. H. I. Lea, Chicago.

"The Management of a Small Gas Company," by Mr. E. H. Negley, Canton.

"Commercialism," by Mr. Lucius S. Bigelow, New York city.

"The Effect of Compression and Transmission on the Heating and Illuminating Value of Coal and Water Gas," by Messrs. V. A. Houghton, Aurora, Ills.; S. L. Cole, Waukegan, Ills.; John H. Moorehead, Chicago, Ills.

"The Comparative Value of Various Coatings and Coverings in the Prevention of Soil and Electrolytic Corrosion of Pipe," by Mr. Robt. B. Harper, Chicago.

"Accidents: Their Cause, Prevention and the Settlement of Claims," by Mr. C. S. Goodwill, Springfield.

We take great pleasure also in announcing that Mr. J. B. Howard, of Galena, has kindly consented to give a short talk on "Personal Reminiscences." This will be one of the most enjoyable features of the meeting. Every paper will be thoroughly prepared, and each is certain to be instructive as well as interesting.

The Entertainment Committee, Mr. George D. Roper, Chairman, is at work now, and we assure everyone that careful plans are being formulated for their comfort and pleasure. A special train will take the members of the Association to Joliet, where the new coke ovens will be inspected. This is a special feature and no member should fail to join the party.

The previous meetings of this Association have done credit to the gas fraternity in the State of Illinois, but every effort is being made to make this meeting not as good as, but better than the others. Do not fail to attend. Reserve your hotel accommodations now. Send the Secretary the names of all persons who wish to become members. Applications will be supplied at once. C. B. STROHN, Secretary.

LIBRARY OF CONGRESS FEB 8 1909 SMITHSONIAN DEPOSIT.

[OFFICIAL NOTICE.]

Announcement of Meeting, Southern Gas Association.

SOUTHERN GAS ASSOCIATION,
OFFICE OF THE SECRETARY,
ROME, GA., Feb. 5, 1909.

To the Members of the Southern Gas Association: The Southern Gas Association will hold its next meeting in New Orleans, La., the 18th, 19th and 20th days of February. The date has been fixed by the Executive Committee so that all desiring to attend may have the benefit of the Mardi Gras railroad rates, which will go into effect Feb. 17.

The following papers have been prepared for the meeting:

"The Gas Works Laboratory," by Mr. Paul McMichael, Atlanta, Ga.

"Our Experience with Alabama Gas Coal," by Mr. K. L. Simons, Birmingham, Ala.

"Oils Available for the Southern Gas Manufacturer," by Mr. R. M. Redding, New Orleans, La.

"The Manufacture of Water Gas," by Mr. A. D. Whittaker, Atlanta, Ga.

"Gas Advertising," by Mr. E. D. Brewer, Atlanta, Ga.

"Competition and Regulation," by Mr. James Ferrier, Rome, Ga.

"Some Notes on New Business, and Advantages of a Show Room," by Mr. J. C. Rushin, Atlanta, Ga.

"Public Policy," by Mr. R. C. Congdon, Atlanta, Ga.

I forward application blanks and copy of the Constitution and By-laws, which will inform you (Sections 6 and 6a) as to the requirements for active and associate membership.

If you are already enrolled as a member of the Association, kindly place the blanks in the hands of your associates and friends, who may be desirous of joining. If you are not already one of us, I will be pleased to receive and file your application. Yours truly,

JAMES FERRIER, Secretary.

BRIEFLY TOLD.

THE STEVENS ALUMNI ANNUAL REUNION.—Mr. J. H. Cuntz, the ever-faithful, always alert, and never ill-tempered Secretary of the Alumni Association of Stevens Institute of Technology, Hoboken, N. J., again puts us under indebtedness to him through the forwarding of an official intimation (rather, it is an announcement) that the Alumni of the Stevens Institute of Technology will have their annual dinner on Friday, February 19th, at the Hotel Astor, Broadway and 44th street, New York. Of course, a large attendance is expected. Among the speakers these are listed: President Alexander C. Humphreys, of Stevens Institute; Alfred Noble, Past President of the American Society of Civil Engineers, and a former member of the Panama Canal Commission, whose topic will be the Panama Canal; Colonel H. G. Prout, Vice-President of the Union Switch and Signal Company; John A. Bensel, Commissioner, Board of Water Supply, of New York city; and Col. George Harvey.

MUSEUM OF SAFETY AND SANITATION.—We ask the particular attention of our readers to the steps that are being taken by those interested in the rather oddly named body, the Museum of Safety and Sanitation. Permanent offices have been established in the United Engineering Societies' Building, 29 West 39th street, under the direction of Mr. William H. Tolman, who is in readiness to furnish any information requisite. We are informed that plans are being pushed forward along practicable lines "to prevent the enormous loss of life and limb to American life and labor, through the Museum of Safety and Sanitation, where safety devices for dangerous machines and preventable methods of combating dread diseases, may be demonstrated." The Committee on Plan and Scope is truly of the right blend, as may be easily proved by looking over the following names: Prof. F. R. Hutton (Chairman); Dr. Thos. Darlington, Commissioner, Health Department, New York; P. T. Dodge, President, Engineers' Club; N. J. Moran, Attorney-at-Law; H. D. Whitfield, Architect. The Chairman is Charles Kirchhoff; Vice-Chairman, T. Commerford Martin; Secretary, A. Spies; Treasurer, Frank A. Vanderlip; Director, W. H. Tolman.

Report of the Public Service Commission, Second District, State of New York.—No. III.

The transportation and lighting companies of the State of New York are supervised by two Commissions, known as of the first and second districts, respectively. The former is limited to the city of New York and the latter the balance of the State.

The reports which reached us from these two Commissions are in no wise comparable, the principal difference being that the New York City Commission have published, in great detail, the operations of all companies under their jurisdiction for the year ended, June 30, 1907,[1] while the so-called up-State Commission has merely issued a general statement.

The Commission reviews briefly a number of its opinions regarding capitalization, and it is of interest to state that a most able digest of these same opinions was presented at the last meeting of The Empire State Gas and Electric Association. There were 76 applications for permission to issue stocks, bonds, etc., all of which were granted, with the exception of six. The report contains a statement covering its work toward securing uniform accounting, annual reports, tariffs and discriminations, also various details regarding trandsportation problems.

THE DIVISION OF LIGHT, HEAT AND POWER.

The Commission of the Second District has under its supervision nearly three times as many lighting companies as the Board of Gas and Electric Light Commissioners of the Commonwealth of Massachusetts and they are divided as shown in Table I.

1. See JOURNAL, Jan. 25, and Feb. 1, 1909.

TABLE I.

Class of Service.	Total Number of Corporations and Municipalities.	Supplied by Cos.	Ind.	Mun.
Electricity	278	173	58	47
Gas and electricity	47	47	..	..
Mixed gas and electricity	2	...	..	..
Coal " " "	17	...	..	..
Water " " "	26	...	..	..
Natu'l " " "	2	...	..	..
Coal gas	19	18	1	..
Water gas	11	10	1	..
Coal and water gas	5	5	..	..
Coal and natural gas	1	1	..	..
Natural gas	52	42	10	..
Oil gas	1	1	..	..
Acetylene gas	31	18	11	2
Gasoline gas	19	15	3	1
Total number of plants	464	330	84	50

The companies manufacturing gas in New York in this district number 81, acetylene and gasoline being excepted, and the supply of each company was regularly tested as regards illuminating power, impurities and pressure. The numbers of inspections are determined by the make, as follows: 10,000,000 cubic feet per year, or less, four inspections, and one additional inspection for each 10,000,000 cubic feet. The maximum number of tests was 26.

There were 732 inspections throughout the year, in 455 of which cases the requirements were fulfilled; twelve of the companies passed all of the tests successfully. In eight companies over 20 tests were made during the year, and these are given in Table II.

TABLE II.—*Showing Results of Tests in the Eight Largest Companies.*

City.	Number of Tests.	Gas within Requirements.	Deficiencies.	Average Candle Power.	Average Sulphur per 100 Cubic Feet.	Average Pressure. Inches.
Albany	25	21	4	20.3	7.0	4.0
Buffalo	26	24	2	17.6	9.9	1.9
Mount Vernon	27	25	2	21.4	7.9	2.4
Rochester	26	23	3	20.8	8.8	3.0
Syracuse	26	21	5	19.4	9.6	2.3
Troy	26	21	5	21.5	6.8	2.1
Utica	24	16	8	20.3	8.2	2.6
Yonkers	26	20	6	21.7	10.0	2.5

The results of all tests show that the mixed gas came much nearer to meeting the requirements of the statutes than either straight coal gas or water gas.

GAS METER TESTS.

The number of meters tested was 103,236 against about 60,000 in Massachusetts. The results for the former are given in Table III.

TABLE III.

Meters.	Fast. No.	Fast. Average pr. ct	Fast. Maximum pr. ct.	Slow. No.	Slow. Average pr. ct.	Slow. Maximum pr. ct.	100 pr. ct. Correct. No.	Unsound No.
Within 2 pr. ct. error	23,305	0.94	..	53,978	1.09	..	21,782	...
Without 2 pr. ct. error	2,045	4.04	50	1,675	5.63	84	....	451

Only 271 of the meters were tested on complaint, against 356 in Massachusetts for 11 months. In the First District of New York, with a total about three times that of the Second District, 1,562 meters were tested on complaint during 6 months!

STANDARD TESTS OF BURNERS.

The Commissioners have been studying the question of standard burners for the different kinds of gas, and state that the burners now used do not give the full candle power value of the gas under test. Standard burners for use with water gas were tested 86 times, and in only 29 instances were the results the best which could be obtained; 29 tests were made with coal gas, 15 of which proved most satisfactory.

TESTS OF CONSUMERS' BURNERS.

The Commissioners also made a number of tests to determine the relative efficiency of 8 types of burners in general use. Tests of this kind undoubtedly made most interesting reading when Mr. Irwin Butterworth presented his paper upon the subject; but that was some time ago. The Commissioners state that less than 20 per cent. of the total gas consumed is now used in open flame burners. So why all of the worry?

CALORIFIC TESTS.

Gas is now being tested for heating as well as illuminating value, with a view of using the former as a standard. It will be at least a year before any definite action will be taken along these lines, and the results from the State of Wisconsin should also be then available.

[Prepared for the JOURNAL.]

The Natural Gas Situation at Huntsville, Ala.

By MR. JOHN R. LYNN.

Various reports in reference to natural gas developments near Huntsville, Madison county, Ala., some conflicting very materially with others, have gone broadcast throughout the land. It will, no doubt, interest gas companies of neighboring cities, and individuals who have been speculating on results, to learn the exact status of present conditions, even though the possibilities of the field may remain somewhat shrouded in doubt. As facts are the essentials, the writer will confine himself to them as nearly as possible and try to treat the facts along purely practical lines.

Just when the first odor of natural gas or trace of petroleum was discovered in this particular locality is rather obscure, but during the past two decades minute pockets of gas, and some oleaginous globules, have been found, at various depths and various places, in northwestern Alabama and adjacent counties of Tennessee. There have been two or three published records antedating these. Such discoveries have, for the most part, been associated with the construction of water wells, and have led to some prospecting in lower strata in attempts to locate a product of commercial value.

Residents of Huntsville tell of a well, drilled for water just east of the city, from which gas exuded and was burned continuously for several months; but reports as to the height of the flame and other conditions are so conflicting that all would be excluded as evidence establishing anything beyond the fact that a small pocket of gas was tapped and soon became exhausted. A few years ago a test was made near the same point to determine what would develop in a lower stratum, but at a depth of about 1,200 feet the drillers lost their string of tools and the work was abandoned. This well was cased with 8¼-inch pipe to the first hard rock, 50 feet below the surface, and with 6¼-inch pipe to the depth of 150 feet, where a second water is found in copious quantity immediately above an extremely hard, flinty, limestone. The remainder of the hole was unprotected, although at about 500 feet a "pencil cave" formation was encountered, and it was this stratum which began caving and eventually put the drilling tools beyond hope of recovery. It is said that pockets of gas were passed at two different depths in this well, but nothing of value having developed, the hole was permanently plugged. More recently a well was drilled to a depth of 450 feet, at a point between the two wells mentioned, and very close to the first one, but without finding any evidences either of gas or oil.

Following the attempt described the rig was moved to a marsh about 2 miles beyond the village of Hazel Green, which lies about 14 miles northeast of Huntsville. The attraction here consisted of the occasional recurrence of oily globules and bubbles on the surface of a small creek, both of which are said to have been inflammable. The result of the first test made here was like the other recorded; some shallow gas, a few drops resembling crude petroleum, and tools lost at a depth of 1,150 feet. Other shallow wells were then drilled, all within a very short radius, each of which showed an insignificant flow of gas at about 300 feet, with the usual oleaginous indications at shallower depths. One of these wells has supplied a very small farmhouse for several years past. The farmer who occupies this place is fortunate in the possession of no near neighbors, and also in the fact that his own demand upon the product is quite a modest one.

The gas in these wells was struck at practically the same depth as in those drilled later at West Huntsville, and although the two groups are situated about 15 miles apart on an air line, the quality of the gas and formation in which it occurs appear to be identical. The gas is evidently from an oleaginous base, practically free from sulphur, has a slight odor, and, in heating efficiency and general physical properties, is similar to the gas obtained from the Warfield district in West Virginia. There is, however, no direct connection between the two groups in a continuous stratum, for while the Hazel Green wells, between July 1st, 1907, and September 1st, 1908, showed very slight diminution in rock pressure, those at West Huntsville, which had been called upon to supply between 3,000,000 and 4,000,000 cubic feet of gas, had in the same period of time shown a marked reduction. The depth at which gas was found in these wells (only 8 of 21 have been small producers) averages a trifle less than 300 feet, the stratum being a slightly porous, dark lime formation, under a closer, pink-tinted, soft limestone. The drilling, which from 150 to 230 feet, is exceedingly difficult, but continues beyond that depth rather freely; in fact, with tools in condition and the exercise of proper caution, no workman should experience any trouble until the "pencil cave," previously mentioned, is encountered, and work in this should be easy enough with the right sort of protection.

It was during the summer of 1906 that the writer had his first glimpse of one of these wells, and the particular one was the first producer, located at West Huntsville, designated as No. 9, the only one of its group which indicated volume by a quick recovery of its initial pressure; and, at that, it was practically worthless when considered by the common standard of computing the value of gas wells. This well had been drilled-in just a few days before, and the local papers were teeming with reports of what had developed and the great things bound in the natural order of things to immediately follow. The inspection was made at the request of the most active stockholder of the local Gas Company, who received a verbal report, which allayed any fear he might have possessed within one hour. The report, as nearly as it can now be recalled, was as follows: "If a farmer had such a well on his property near his home he could run some pipe and live comfortably for a while; but if any of his neighbors came over to pipe any of it off the premises, the man would be justified in meeting them at the fence with a shotgun." It was rather a laconic report, but later events have only tended to emphasize its absolute truthfulness.

Although the consensus of all reliable advice should have procured other procedure, the people in charge of this experimental work went on to drill more shallow wells in the same immediate neighborhood. It would have been the better part of wisdom to have staked everything on a few tests of much deeper strata, commencing with a hole sufficiently large to permit several reductions of diameter. Such a proceeding would bring a practical result; whether it be success or failure, shallow drilling is essentially experimental. One of the gentlemen interested has always maintained that No. 10 came in with a higher initial pressure than No. 9, and that No. 13 exceeded No. 10 in the same respect in about the same ratio. It is unnecessary to quote his figures, but it can be stated positively that the maximum pressures obtained on these wells, at the same time and under the same conditions by the writer later on, were always identical in result one with the others, except that No. 9 was the only one which, when capped, speedily recovered its maximum. As this clearly proves, even in the absence of another direct proof of the same thing, which will be mentioned later on, that a direct connection joins these wells in a common stratum, the gentleman mentioned, if he possessed good eyes and was clothed and in his right mind at the time, was a witness to events which involved a greater miracle than obtaining different pressures on the heads of the same boiler at the same time and with gauges of equal accuracy, for these wells were drilled in point of time, as their individual numerals indicate.

From July, 1906, to February, 1907, the wells merely supplied a small quantity of gas to the offices of a couple of cotton industries near No. 9. An attempt was made to use the product under a boiler at one of these concerns, but the result was unsatisfactory, the supply being inadequate for the service demanded. About the latter date a lot of second-hand casing, of small diameter, had been converted into a rather doubtful main system, a few services had been connected and a few houses and small stores began to consume gas in West Huntsville.

From February 1st to July 1st, 1907, a period of 5 months, 847,700 cubic feet of gas was accounted-for as sold to consumers. At the beginning of this period the rock pressure was reported to be 84 pounds, but on July 16th, just 2 weeks after its close, it had decreased to 69 pounds, according to a test made by the writer.

From July 1st, to December 1st, 1907, a second period of 5 months, the consumption increased to 1,528,700 cubic feet, when the rock pressure, taken in the same manner and with the same instrument, recorded only 36 pounds. During this time the regulators had been removed at the wells and the gas admitted at the inlet of the station meter at the gas works, although there were a few consumers along the line to the city. It was customary to admit all gas to a gasometer with a 2.8-inch pressure, and to supply the city from a smaller holder, which supported a 2.2-inch water column. The average pressure at the point of admission gave a resistance of practically 3 inches of water. About December 1st the natural gas was admitted direct to the street mains, very considerably reducing the resistance offered.

During the next 5 months, from December 1st, 1907, to May 1st, 1908, taking all the gas which could possibly be obtained, the amount accounted for was only 1,148,400 cubic feet, and the maximum pressure at the wells, entirely closed and not working, was found to be

27 pounds, a decline during 15 months of 57 pounds on an average consumption of approximately 235,000 cubic feet per month.

In comparison with such a result one must take into consideration that, during the year 1907, the total amount of gas sold and accounted-for in the district supplied approximated 13,000,000 cubic feet. The average amount of natural gas consumed annually in Northern cities, where it can be obtained at an average of 25 cents per 1,000 cubic feet, is practically 24,000 cubic feet per capita. Eliminating the negro population entirely, a Southern community of 20,000 people, 10,000 white, would, under similar conditions, demand 240,000,000 cubic feet of gas. One can see at a glance that the wells at West Huntsville would have been good for but little more than 1 per cent. of the demand during the first year. What of the second year?

It was finally decided to make a test of the lower strata, and a contract was let for the drilling of a well to a depth of from 2,500 to 3,000 feet. This well, designated as No. 21, had an unfortunate ending, as it was improperly cased and the water from the 150 feet stratum drowned out all the other wells in the group, a further proof of the direct connection mentioned. At a depth of 470 feet the presence of water, and consequent sloughing with the churning motion of the tools, caused the loss of the driller's tools in the "pencil-cave" formation previously referred to. Since November 1st, 1908, none of the wells yielded any gas at all, and repeated efforts have been made to pump out the stratum from which it was formerly obtained. The company has since been supplying manufactured gas alone to its consumers, and it is doubtful whether the present wells at West Huntsville will ever supply even a small quantity of gas again. In the opinion of the writer, based upon the decrease in pressure shown, as a commercial factor, they are not worth the amount already expended in the pumping process.

Other attempts at similar work in this same section of Alabama have also met with failure. During the winter of 1892-3 the writer was located temporarily at Decatur, in Morgan county, just adjoining, and at that time drilling operations were being conducted at Hartzell, several miles out in the country. No definite information was given out at the time, except that prospects were good for a strike in oil, but the writer recently secured a statement from one of the parties concerned, of which the following is a summary: An insignificant flow of gas was struck at 350 feet, followed by another and stronger flow at 750 feet. The rock encountered was very hard and drilling slow to a depth of 650 feet, several strata impregnated with oil were passed, and at 1,650 feet a stratum of black sand, 20 feet in thickness, was passed, the latter appearing to be saturated with crude petroleum. Finally the well was stopped at 1,700 feet, the company's financial resources having been exhausted. This gentleman could not say whether they encountered Trenton shale, but it can reasonably be assumed that they did not. Nor did he know whether the first or second gas occurred in the same formation as that at West Huntsville and Hazel Green.

Reports from a reliable source, concerning a later drilling nearer Decatur, support the statement in regard to upper and lower pockets of gas, although in the latter case they were estimated at 300 and 550 feet. In the latter instance the people for whom the work was done were after water for a manufacturing plant, and no attempt was made to utilize the gas. This latter circumstance would indicate that the quantity was very slight.

A gentleman of many years' experience, who drilled at Hartzell and many other places in the South, has been engaged recently on an experimental well about 2 miles southeast of Athens, in Limestone county, and within 20 miles of Decatur. Indications of oil have been reported near this place and a well has been drilled very close to the site of his present attempt. The first hole was crooked and hence was abandoned. Very little information has been given out concerning the results of the last work done there, but it can be said upon the best authority that, with more than 2,000 feet of hole completed, there have been no developments of an encouraging nature. It can also be said upon the same authority that in the same depth no stratum resembling Trenton has been entered.

Geologists in expressing opinions upon prospective work of this character are frequently influenced, if not really actuated by selfish motives, particularly in a territory where the strata show peculiar breaks and unexpected demarkations, as is the case in the Tennessee Valley, along the Lower Appalachian Mountains. Such opinions vary as to the estimated depth of Trenton in that locality, ranging from 1,800 to 3,000 feet, or an average of 2,400 feet. Dr. Eugene A. Smith, of the University of Alabama and State Geologist, is perhaps the best authority upon the subject as applied to the section treated here and he is wise enough to say that facts regarding the deep strata can be established only by actual investigation, and, while he expresses a belief that oil or gas will ultimately be found in this territory, nothing given out by him in any communication known to the writer would tend to create any undue enthusiasm over prospective results. Dr. Smith is an honest, conservative student and teacher, whose name is honored by all who know him, and his expressions upon the subject are tempered to a great extent by his thorough knowledge of the numerous failures, which have followed repeated attempts, at every drilling throughout the counties of the State, which have been mentioned here.

From what he has seen and what he has heard the writer has formed several opinions upon the subject; some have been dismissed, but others cannot easily been shaken. (1.) The work so far has been merely experimental and signifies nothing beyond a possibility; (2), if the possibility is to become a certainty, such a result can be accomplished only by honest effort, aided by competent workmanship; (3), a small, shallow gas field is not worth even a slight attempt at development; (4), no expert can with any degree of certainty locate remote deposits in the earth, nor can several amateurs accomplish a similar result. Other opinions might be ventured, but not now.

In conclusion a little story, and it is a true one, may be related, and the occurrence has a marked bearing upon many reports emitted concerning the subject in hand. Some time since a well-known commercial traveller met a smooth-faced, slick-tongued, well-dressed acquaintance of former days, and accosted him thus: "Hello, 'Bob,' what are you doing now?" "Why, 'Bill,'" came the reply, "I've got the snap of my life, selling stock for a company down here at Huntsville that has got enough natural gas to supply the country. Running all the cotton factories and everything else over there, got a pipe line into Decatur, one headed for Birmingham and contracts for others to Nashville, Chattanooga and Memphis. Biggest thing on earth." "When did all this happen?" asked the other. The answer came without the least hesitation, "Been on for several months." "Well, that's funny," ventured the first party, "I just came from there day before yesterday and hadn't heard about it." "Great Scott!" ejaculated the little man with the prematurely gray hair, "I forgot you lived at Huntsville;" and if he sold any stock on that day, it's a cinch his old friend didn't buy it.

[Furnished by the Secretary.—Continued from Page 185.]

PROCEEDINGS, THIRD ANNUAL MEETING, AMERICAN GAS INSTITUTE.

Held in New York City, October 21st to 23d, 1908.

First Day—Morning Session.

President Humphreys then read his

INAUGURAL ADDRESS.

[For the text of the Address, see Journal, Vol. LXXXIX., Nov. 2, 1908; p. 750.]

Report of Nominating Committee.

The President called for the report of the Nominating Committee, which was submitted by Mr. R. B. Brown, as follows:

Mr. President and Members of the Institute: Your Nominating Committee begs to submit the names of the following active members in nomination for the respective offices mentioned:

For President—Charles F. Prichard, Lynn, Mass.
For First Vice-President—W. H. Gartley, Philadelphia, Pa.
For Second Vice-President—Donald McDonald, Louisville, Ky.
For Secretary and Treasurer—A. B. Beadle, New York.
For Directors—J. D. Shattuck, W. A. Baehr, H. L. Doherty, W. Cullen Morris, A. P. Lathrop.

Election of Officers.

The President—Gentlemen: You have heard the report of the Nominating Committee. What will you do with it? The rules governing the matter are: If there is no objection, a ballot is immediately ordered under the by-laws referred to in the Directors' Report. If that ballot is taken in detail it will be taken by opening the polls and keeping them open for a specified time outside the room. If, however, there is an objection, the ballot is to be postponed to the first session to-morrow, in which case also if a ballot in detail is taken, the polls are to be opened outside of the room for a definite period. If there are no objections to the report of the Committee—that is, if no other nominations are made—then it is in order to instruct the Secretary to

cast one ballot for the men nominated by the Committee. The matter is in your hands, gentlemen.

On motion of Mr. Cowdery the Secretary was instructed to cast the ballot as outlined by the President. Mr. Dunbar having cast the ballot as directed, Mr. A. E. Forstall as Chairman of Board of Tellers reported the fact to the President, who announced the result.

THREE RESPONSES.

The President—I presume the members would like to hear at this time from Mr. Prichard.

Mr. Prichard—Mr. President and Gentlemen: I am very glad of the opportunity to express my deep appreciation of the honor you have conferred upon me. It is an honor of which any man might be proud and I can assure you that I appreciate it thoroughly. I am very glad at this time also to have the opportunity of asking for your special support during the coming year. I think you all realize that it is no easy task to follow two such men as those who preceded me. In Mr. Clark and Dr. Humphreys we have two of the best men of the Association. Not only are they of the best, but each has a staff at his command which few of us have in our power to use. For that reason I shall need special aid and I would ask every member of the Institute to help me in bringing it a little higher up. We want to see it progress, and it seems to be my task to help it progress during this coming year. I, therefore, ask your support, and I feel sure from the manifestations I have seen here this morning, that I shall have it, and I want to thank you for it. [Great applause.]

(There were cries, "Gartley! Gartley!")

Mr. Gartley—Gentlemen, I wish to express my deep appreciation of the honor that is involved in this election. I can only say that I have had the pleasure—or perhaps I had better say the privilege—of working with Dr. Humphreys until the late hours of the night, and I can assure you that the position of President of this Institute is no sinecure; consequently, I wish to express to Mr. Prichard my very great interest in his health for the coming year.

The President—Mr. McDonald, shall we hear from you, sir?

Mr. McDonald—I thank you very heartily. I appreciate the honor conferred upon me, and will do all I can to hold up the hands of Mr. Prichard, realizing that he has a great task before him if he aims to do any more than hold up the standard already set for this body.

REPORT OF TRUSTEES GAS EDUCATIONAL FUND.

The President—We will now receive the report of the Trustees of the Gas Educational Fund.

Secretary Forstall read as follows:

To the Subscribers to the Trustees Gas Educational Fund—Gentlemen: The Trustees appointed at the Twenty-sixth Annual Meeting of the American Gas Light Association, held October 17th, 1908, to administer the Educational Fund formed by your subscriptions, submit the following report as to the work done from October 1st, 1907, to September 30th, 1908.

There having been no change in the amount of money which could be spent, it has not been possible to do more than carry on the work of the Correspondence Class in a manner similar to what has been done in previous years, although, as has been urged in previous reports, the gas industry would be greatly benefited if we were able to broaden our work in a manner which is now impossible on account of lack of funds.

Most of the subscriptions which have been in force expired with the beginning of the current fiscal year, and it will be necessary to secure the renewal of these subscriptions if the work is to be carried on. Some of the larger ones have already been renewed, and a general appeal will be sent out before long to all persons interested in the gas industry in the United States and Canada. It is to be hoped, however, that those subscribers whose subscriptions have expired and have not yet been renewed will not wait for such an appeal, but will renew their subscriptions of their own accord. Where the subscriptions are personal ones it is to be desired that the subscribers will interest their companies in the work to the extent of having these companies make subscriptions also.

The publication of the Volume containing all of the answers sent out to the different sections of the Class is well underway, but necessarily proceeds slowly on account of the checking of proof both by the Secretary and by the Chairman. About one-quarter of the matter has been set up in type, and the Volume should be ready to be issued early in 1909.

During the year 15 members of the Section of 1908 finished their course and their connection with the Class ceased, while the Section of 1911 started work on January 1, 1908, with a membership of 53.

The number of members in each Section at the beginning of the year, the changes that have taken place during the year, and the names of the members of the Class who have completed the course during the year, are shown in detail on the Secretary's report, which is appended.

The Section of 1909 now contains 19 members, the Section of 1910, 33, and the Section of 1911, 49, making the total membership in the regular Class, 103. Four special students are receiving the questions and answers with the Section of 1911.

The card index of the principal articles published in the AMERICAN GAS LIGHT JOURNAL, *Progressive Age* and the *Journal of Gas Lighting* has been kept up during the year.

It may be advisable to remind the subscribers that, at the office of the Secretary, No. 58 William street, there is a room conveniently located in the downtown business district which is available for their use in case, when visiting New York, they wish to arrange for meeting friends or business associates at some place other than their hotel.

The Treasurer's report, which is appended, shows the total amount of subscriptions to date, the available income and expense for the year, a summary of the cash account and the statement of the amount of the surplus fund and the securities in which it has been invested.

The surplus fund is made up of a contribution of $1,000, of subscriptions paid in in advance of the time when they are due, of unexpended balances and of interest received on investments. The proper portion of the advance subscriptions will, of course, be drawn out each year to meet expenses, but the unexpended balances and the interest will accumulate into a fund which will be available to assist in carrying on the work in case all the present subscriptions are not renewed when they expire. Respectfully submitted,

Trustees Gas Educational Fund,

WALTON CLARK, *Chairman.*
ALFRED E. FORSTALL, *Secretary.*

RESOLUTIONS ON THE DEATH OF THE LATE SIR GEORGE LIVESEY.

The President—May I suggest that at this Convention, and early in its course, we should take appropriate notice of the death of one of the most prominent figures ever connected with the gas industry—Sir George Livesey. I shall be glad to listen to any resolution that would fittingly express the regret and sorrow of the members of this Institute in connection with that event.

Mr. A. G. Glasgow—I beg leave to hold the respectful and sympathetic attention of all members of the Institute here present while I present the following resolution upon the death of the late Sir George Livesey:

"Having learned with deep regret of the recent lamentable death of Sir George Livesey, whom we were proud to number among the Honorary Members of the late American Gas Light Association,

"The Members of the American Gas Institute, in annual meeting assembled,

"Respectfully express their unqualified admiration of Sir George Livesey, as an engineer, an administrator, and a *man;* and

"Record their profound sense of the great loss sustained through his death by all members of the gas industry in every part of the world."

The President—You have heard the resolution. Is it seconded?

Mr. Walton Clark—Mr. President, while I regret the occasion, I am proud of the privilege of seconding the resolution.

The President—All in favor will rise.

The whole body of delegates then arose, not resuming their seats until after some moments of silence.

REPORT ON THE BEAL MEDAL.

The President—The next business is report concerning the Beal Medal. Mr. Rollin Norris reports on the American Gas Light Association papers of 1905.

Mr. Norris—As Chairman of the Beal Medal Committee for that year, I take pleasure in reporting that the Committee has awarded the Beal Medal, for 1905, to Mr. Henry L. Rice for his paper on "High Pressure Distribution."

The President—You have heard the decision and that will stand good as so given, and the medal will be awarded to Mr. Rice. Will Mr. Prichard report?

Mr. Prichard read the report as follows:

The Committee to whom was referred the awarding of the Beal Medal, for the 1907 meeting, would report that they deem it inadvisable to award the Medal this year.

The Committee recognize the great value of the reports of the vari-

ous Committees of the Institute, but are informed by the Directors that the award cannot be made to a committee.

C. F. PRICHARD,
A. S. MILLER,
E. G. COWDERY,
} Committee.

The President—Mr. Cowdery? As to the

REPORT OF PUBLIC RELATIONS COMMITTEE.

Mr. Cowdery—Mr. President, the report of the Public Relations Committee is very short and was made to the Board of Directors and correctly reported in the proceedings of the Board of Directors this morning. I think there is no further report to be made.

The President—You have heard the report of Mr. Cowdery, and it will be accepted if there is no objection. Report of the Technical Committee, Mr. W. H. Gartley, Chairman.

REPORT OF TECHNICAL COMMITTEE.

Mr. Gartley—Gentlemen, I have a very short report, the main report having been made to the Directors. To refresh the minds of the members as to the purposes and scope of the Technical Committee I will quote from the Directors' report for the year 1907:

"To insure quality, as well as quantity, and a unity of purpose, the oversight of the work should be in comparatively few hands. To accomplish this end the Board recommends that there be two general committees, viz.: Technical Committee and Public Relations Committee, each Committee to be composed of 6 members, to be appointed by the President each year, and to serve for 1 year. In general, every question which has a bearing on the relation of a company to the public or to any governing body would be considered by the Public Relations Committee. The Technical Committee would devote its special attention to the prosecution of research work and to secure papers for the meeting. Every resolution of the Institute for the investigation of any question, whether as the result of the reading of a paper or not, will be referred by the President to whichever of these Committees it would naturally belong. Whenever either committee thought it advisable, a sub-committee would be appointed, one member of which should be of the general committee, the other members being selected from the Institute membership. This sub-committee would exist at the pleasure of the general committee, to which its report would be made.

"If the membership of these two committees be properly chosen, they will, in connection with the Secretary, devoting his entire time to Institute work, effect a marked improvement in the latter. Instead of as at present, papers coming in each year too late to be properly considered before going to press, and the meeting programme a miscellaneous collection of subjects, it is possible to imagine a programme thought out a long time in advance, each paper more or less a supplement of the other, and in the hands of the committee several months before the meeting, to enable careful consideration and possible revision.

"With the organization as above outlined there will be far less danger than now exists of ill-considered papers and discussion becoming embodied in the 'Proceedings,' and of hasty action on questions, whether of technical nature or affecting public relations. Notwithstanding this, the Board recommends that any resolution, recommendation or report that has not been considered and approved by the Board of Directors, and that, in the opinion the Chair, would have the effect of changing the policy of the Institute, or committing it to any new policy or opinion to which it had not theretofore been committed, should be referred by the Chair before adoption to the Board of Directors, to report at the next regular Institute meeting."

In pursuance of this, the Technical Committee has reported at length to the Board of Directors on the work of the sub-committees and General Committee, and on the technical papers that have been written for the Institute this year by the members.

The action of the Technical Committee and the Board of Directors upon each paper and report will be read to you by the Secretary at the conclusion of the reading of the paper or report, or after the discussion thereon.

The report of the sub-committees as read, having met with the approval of the Technical Committee, and having been submitted to the Board of Directors, who have approved and accepted the reports with or without amendment, will be submitted to the Institute for final adoption, when they will reflect the attitude of the Institute on the questions involved. In the case of the papers contributed by members the statements and opinions expressed therein should not be considered as reflecting officially the attitude of the Institute.

The expectation of the Board of Directors that the reports and contributions by members to the Proceedings would have been in the hands of the committee several months before the meeting to enable careful consideration and possible revision this year, has not been fully realized, the result being that the reports and papers as printed and now in your hands have been in some cases revised by the Board of Directors, and will not appear in the final "Proceedings" exactly as printed in the advance copies. We suggest that the Technical Committee in the future insist that all contributions shall be presented to the Technical Committee in complete form by August 1.

On motion, the report was accepted and ordered placed on the records.

The President—The next business in order is the report of the Committee on Uniform System of Accounting. Mr. Carter made his personal apologies to me this morning and said he had expected to read that report as Chairman, but that he had been suddenly called off in connection with a legal matter, and it was absolutely impossible for him to be here. Will Mr. Prichard read it or have it read from the desk? Mr. Prichard is on that committee and next in order.

Mr. Donald McDonald—While Mr. Prichard is reaching the stand I want to call the attention of the Institute to the fact that a most excellent Presidential address was received and no disposition made of it. It is customary to refer such addresses to a committee, and I move that a committee, consisting of Messrs. A. G. Glasgow, A. S. Miller and J. H. Eustace be appointed to consider the Presidential address and report to the Institute. [Seconded.]

The President—Will Mr. Doherty be kind enough to take that motion in hand?

Mr. Doherty—Gentlemen, you have heard the motion. All in favor say "Aye." Contrary, "No." The motion is carried.

REPORT OF PROGRESS BY COMMITTEE ON UNIFORM SYSTEM OF ACCOUNTS.

Before your Committee could begin work on the revision of the uniform system of accounts adopted by the American Gas Light Association, October, 1902, the Public Service Commissioners of the First and Second Districts of the State of New York and the Railroad Commission of the State of Wisconsin announced their intention of standardizing the accounts of gas and electric companies within their several jurisdictions.

Following these announcements, the Commissions organized statistical bureaus, appointed expert statisticians, and held several conferences, which representatives of the gas and electric companies, as well as of the State and National Committees on uniform accounting, were invited to attend.

In the beginning, the Commission of the First District and the Commission of the Second District in the State of New York acted entirely independent of each other; but a consideration of the advantages to be derived from joint action soon led to combined hearings, which were attended by representatives of the Commissions and the Companies in both districts, as well as by members of both National and State Accounting Committees.

At an early date the attention of both Commissions in New York State was invited to the fact that the Committees of the National Associations representing the gas and electric lighting interests were engaged in formulating a uniform system of accounting, and the suggestion was made that, if by working together, the Commissions' representatives and the members of these committees could agree upon standard systems of accounting for these two branches of public service industry, such systems would in all probability be adopted by Public Service Commissions present and future for other States, and, through adoption by the National Associations, would become the recognized standard systems of accounting for gas and electric companies throughout the country. The advantages which would accrue to the Commissions, the companies and the public generally, from the accomplishment of this undertaking, were too obvious not to commend themselves to the favorable consideration of the Commissions, and thereafter the representatives of the New York Commissions and of the National Associations were in frequent communication with each other on the subject in hand. At some of the public conferences, representatives of both the Massachusetts and Wisconsin Commissions were present.

In the very beginning, your Committee took the stand that, to be universally available, a uniform system of accounting for gas companies would have to possess the qualities of simplicity and flexibility. Simplicity, that it might be made use of by the smaller companies; flexibility, that it might readily lend itself to the greater elaboration of detail necessary for recording the operations of larger companies.

The Commissions' representatives, on the other hand, took the stand that, in order to furnish all the information desired by the Commissions and the public, a uniform system of accounting should show a company's operations in the greatest possible detail. A narration of the many debates and conferences which were held and the many tentative systems which were considered, would be unprofitable at this time.

Some idea of what was accomplished by your Committee can be gathered from the fact that the tentative scheme promulgated by the New York State Commissions and the Wisconsin Commission called for the segregation of the property accounts; each class of assets were to be shown in great detail under the head of tangible and intangible property. "Maintenance" or "Repairs" accounts and "Depreciation" accounts were provided in the "Operating Expenses," to correspond with the numerous tangible and intangible capital accounts.

The New York Commissions, in their latest tentative scheme, abandon the idea of calling upon the companies for any more elaborate segregation of their capital accounts than is shown in their books at the time their new system of accounting goes into effect. Such capital accounts are to be reported as they appear upon the books, and are to be called "Fixed Capital."

Charges to capital accounts made subsequently to the date the new system goes into effect are to describe the plant and property acquired with sufficient particularity to enable its identification whenever necessary.

Depreciation of capital is to be taken care of by charging in the operating expenses month by month the amount estimated to be necessary to cover such wear-and-tear and such obsolescence and inadequacy as have accrued during the month.

The evident intent of the Commissions is to provide that, when capital is retired from service, any loss which accrued prior to the date their order went into effect, shall be charged against the "Profit and Loss Account" or against such reserve accounts as may have been created prior to the date of their order, and that the loss which accrued subsequently to the date of their order shall be charged against an amortization account created subsequently to the date of their order by monthly charges in the operating expense accounts, and that such monthly charges shall have been adequate to take care of such loss as it accrued.

At our last hearing it was stated by a Commissioner that, when the system has been in operation a year or even less, points will no doubt arise which will convince them that the system will need modification, in which event, he stated, changes would be made with the least possible delay.

Your Committee feels that it cannot too warmly express its appreciation of the courteous consideration it received at the hands of the Commissions and their representatives.

Your Committee hoped to present at this time for your consideration the New York Commissions' final system of accounting, together with some definite recommendation by the Committee in relation thereto. We learn, however, that the Commissions' final order will not be published until too late to be embodied in our report. We, therefore, present herewith the Commissions' latest tentative system, which, we believe, will be of general interest as indicating the trend of the Commissions' mind on this important subject.

We are led to believe that the Commissions' final scheme will provide a condensed classification of accounts for the smaller companies.

Respectfully submitted,

R. A. Carter,
C. F. Prichard,
A. P. Lathrop,
A. S. Cooke,
W. A. Baehr,
H. L. Rice,
G. W. Curran,
S. J. Glass,
Robert Grant,
} Committee.

Report of Progress on Dipping Meters.

The President—Is Mr. Castor ready to report progress on dipping meters?

[For the Castor report see Journal, Jan. 11, p. 54.]

Discussion.

The President—Gentlemen, you have heard the paper by Mr. Castor. It is now open for discussion. You have heard a practical paper.

Mr. R. B. Brown—I can only confirm some of the statements made. Apparently the action of the mineral oil has a beneficial effect upon the diaphragms. We also find that it has a very beneficial effect on the valve motion. Enough oil seems to be carried to the seats of the valve to prevent sticking and hard working of meters. We find it almost eliminates the causes which tend to make a meter run fast, but causes which tend to make a meter run slow do not seem affected in similar degree.

Mr. Gartley—The remarks made in the latter part of this paper, as to the possibility of error in testing, ought to be well considered, and I should like to ask whether it is the general practice, or to what extent the practice of using gas for testing meters is carried. Mr. President, I should like to request that those gentlemen who use gas for testing meters hold up their hands. [One responded.]

Mr. T. D. Miller—My experience with dipping meters is that one very serious trouble is not referred to in the report at all. That is the large accumulation of condensation, rather than oil in the bottom of the meter. In order to get information on the subject we took some of the oil that we were using for dipping meters, placed it in a bottle and passed a stream of gas over it. In 10 days the volume of oil in that bottle had increased 85 per cent. As the oil line rises of course it is more than likely that this light oil deposits on top of the heavier mineral oil, and cuts off the capillary action of the leather in picking up the mineral oil and carrying it to the upper part of the leather. With this problem before us, we have done some work, and I believe have accomplished something toward oiling the diaphragm from the other side; that is, from the top instead of the bottom. If I may be pardoned for getting almost into a commercial subject, I will say we are now operating some 50 meters that are being oiled from the top with perfect results so far; meters that have passed approximately 200,000 cubic feet of gas, come in testing within ½ of 1 per cent. of the same test that they made when they went out. The subject has not been developed far enough for me to give you any extensive data, but I should be very glad, indeed, to talk to anyone who wishes to see me after the meeting.

Mr. R. B. Brown—In answer to some of the questions raised by Mr. Gartley's remarks, in support of my position I would say I have had some experimental work done, and it is exceedingly interesting, on the point raised by Mr. Gartley. Testing with air, under normal conditions, in our part of the country where the degree of saturation is not high, we find that repeated tests invariably show a meter faster on each consecutive test. Now this question of regulation is pretty apt, in the future, to come up in the testing of meters, especially in the re-testing of disputed cases. This fact is certainly one we should take cognizance of in taking care of, or in influencing the way in which the regulations are handled. If our first testing is disputed, and a second or third test be made, or if, as in Wisconsin, we have a gas company test, then perhaps the city's inspector's test, and later a State inspector's test, in which this test shows (as from experimental work, we know that they will with air) a meter increasingly faster, it is a very serious matter, and one to which we should give a great deal of thought. In testing a meter with gas and with air, we find very considerable discrepancies due probably largely to the difference in gravity and the difference in capacity of the meter with a fixed inlet pressure and a given break of pressure through the meter. We also find that the same meter, testing first with gas and then with air under exactly the same conditions, shows discrepancies which are too great to be ignored. In connection with this I have a few figures here which I won't take the time of the Institute to read, but they can be incorporated in the "Proceedings." (See following page.)

Mr. Beadenkopf—We have oiled 49,000 meters since we started, Jan 1, 1907, and found an improvement of about ½ of 1 per cent. in the test of meters brought in since we have been placing this oil through the meters. I think if Mr. Miller tries, operating very carefully, a little light oil in a bottle on top of the dipping oil, he will find they will mix of themselves, because the light oil is a strong solvent for the other oils.

Mr. Castor—I might say we have not experienced the trouble Mr. Miller speaks of in the great accumulation of condensation in our dipping meters. As to Mr. Beadenkopf's assertion, the oil and condensation do mix thoroughly, and in the storing of the condensation taken from dipping meters we cannot see any separation of the oil from condensation.

Mr. T. D. Miller—I am rather afraid that the gentlemen who are speaking about condensation regard it as a good thing. The object I had in making my statement, which includes the water of condensation as well as the oil, is to bring out the fact that if oil is present in a large area in the bottom of the meter, there is a tendency to pull down more hydrocarbon. If you can avoid this oil being there in this large quantity and stop that condensation, you are benefiting your gas, and you will certainly get better results in oiling your leather if you introduce the oil at the top of the leather, letting capillary attraction and gravitation both act instead of depending on capillary attraction to act just as it may.

GAS.

Company's Meter No.	Low Capacity Test. Prover.	Meter.	Per Cent. Error.	Cu. Ft. per Hour.	Pressure Inlet.	Pressure Outlet.	Full Capacity Test. Prover.	Meter.	Per Cent. Error.	Cu. Ft. per Hour.	Pressure Inlet.	Pressure Outlet.	Temp. Room.
14,476....	2.05	2.00	2.44 S.	45.0	20-10	18-10	2.00	2.00	O.K.	120.0	20-10	12-10	74
85,652....	2.01	2.00	0.498 S.	45.0	20-10	19-10	2.01	2.00	0.498 S.	133.3	20-10	12-10	74
84,345....	2.02	2.00	0.99 S.	45.0	20-10	18-10	2.01	2.00	0.498 S.	128.0	20-10	12-10	74
21,006....	2.02	2.00	0.99 S.	45.0	20-10	18-10	2.03	2.00	1.48 S.	120.0	20-10	11-10	74
57,057....	2.03	2.00	1.48 S.	45.0	20-10	18-10	2.01	2.00	0.498 S.	133.0	20-10	12-10	74
			0.3 BREAK.						0.5 BREAK.				
14,476 ...	2.02	2.00	0.99 S.	56.6	20-10	17-10	2.03	2 00	1 48 S.	88.0	20-10	15-10	74
85,652 ...	2 01	2.00	0.498 S.	57.0	20-10	17-10	2.01	2.00	0.498 S.	92.3	20-10	15-10	74
84,345 ...	2.00	2.00	O.K	57.0	20-10	17-10	1.99	2.00	0.52 F.	92.5	20-10	15-10	74
21,006 ...	2.04	2.00	1.95 S.	57.1	20-10	17-10	2.03	2.00	1 48 S.	90 0	20-10	15-10	74
57,057....	2.02	2.00	0.99 S.	58.0	20-10	17-10	2.03	2.00	1.48 S.	92 3	20-10	15-10	74
							AIR.						
14,476....	2.01	2.00	0.498 S.	33.6	20-10	17-10	1.98	2.00	1.01 F.	88.0	20-10	10-10	..
85,652 ...	1.96	2.00	2.04 F.	38.0	20-10	18-10	2.00	2.00	O.K.	103.0	20-10	11-10	..
84,345 ...	1.96	2.00	2.04 F.	33.9	20-10	17-10	2.00	2.00	O.K.	100.0	20-10	11-10	..
21,006....	2.02	2.00	0.99 S.	33.9	20-10	17-10	2.04	2.00	1.95 S.	88.0	20-10	11-10	..
57,057....	2.01	2.00	0.498 S.	34.3	20-10	17-10	2.01	2.00	0.498 S.	97.0	20-10	11-10	..

No. Test.	Co.'s Meter No.	Prover Reading.	Meter Reading.	Per Cent. Error.	Date of Test.
1.....	3,614	4.06	4.00	1.48 S.	October 7, 1908.
2.....	3,614	4.06	4.00	1.48 S.	" "
3.....	3,614	4.05	4.00	1.25 S.	" "
4.....	3,614	4.03	4.00	0.74 S.	" "
5.....	3,614	4.04	4.00	0.99 S.	" "
6	3,614	4.02	4.00	0.50 S.	" "
7.....	3,614	4.01	4.00	0.25 S.	" "
8.....	3,614	4.00	4.00	O. K.	" "
9.....	3,614	4.00	4.00	O. K.	" "
10.....	3,614	3.99	4.00	0.25 F.	" "
11.....	3,614	3.99	4.00	0.25 F.	" "
1.....	14,961	4.50	4.00	11.10 S.	" "
2.....	14,961	4.50	4.00	11.10 S.	" "
3.....	14,961	4 49	4.00	10.90 S.	" "
4.....	14,961	4.46	4.00	10.30 S.	" "
5.....	14,961	4.42	4.00	9.50 S.	" "
6.....	14,961	4.35	4.00	8.03 S.	" "
7.....	14,961	4.34	4.00	7.82 S.	" "
8.....	14,961	4.28	4.00	6.54 S.	" "
9.....	14,961	4.26	4.00	6.10 S.	" "
10.....	14,961	4.24	4.00	5.66 S.	" "
11.....	14,961	4.18	4.00	4.31 S.	" "
12.....	14,961	4.18	4.00	4.31 S.	" "

No. Test.	Company's Meter No.	Prover Reading.	Meter Reading.	Per Cent. Error.	Pressure Inlet Meter.	Temp. Air in Prover.	Temp. Air in Room.	Temp. Water in Prover.	Date of Test.	Cu. Ft. Air Per Hour.
1	75,435	4.00	4	O. K.	15-10	73	74	73	Oct. 8, 1908.	43
2	75,435	3.98	4	0.52 F.	15-10	74	74	73	"	43
3	75,435	3.96	4	1.01 F.	15-10	74	74	73	"	44
4	75,435	3.95	4	1.27 F.	15-10	73	73	73	"	46
5	75,435	3.94	4	1.52 F.	15-10	73	72	73	"	44
6	75,435	3.92	4	2.04 F.	15-10	73	72	73	"	45
7	75,435	3.90	4	2.56 F.	15-10	73	72	73	"	46
8	75,435	3.90	4	2.56 F.	15-10	73	73	73	"	46
9	75,435	3.90	4	2.56 F.	15-10	73	73	73	"	43
10	75,435	3.91	4	2.30 F.	15-10	73	72	73	"	44
11	75,435	3.90	4	2.56 F.	15-10	73	72	73	"	45
12	75,435	3.90	4	2.56 F.	15-10	73	72	73	"	45
13	75,435	3.92	4	2.04 F.	15-10	71	72	71	Oct. 9, 1908.	43
14	75,435	3.88	4	3.09 F.	15-10	71	72	71	"	46
15	75,435	3.86	4	3.63 F.	15-10	72	72	71	"	46
16	75,435	3.88	4	3.09 F.	15-10	72	72	71	"	45
17	75,435	3.86	4	3.63 F.	15-10	74	74	75	"	46
18	75,435	3.85	4	3.09 F.	15-10	74	74	75	"	45
19	75,435	3.85	4	3.90 F.	15-10	74	74	75	"	46
20	75,435	3.85	4	3.90 F.	15-10	74	74	76	"	47
21	75,435	3.85	4	3.90 F.	15-10	74	74	75	"	47
22	75,435	3.86	4	3.63 F.	15-10	74	74	75	"	47

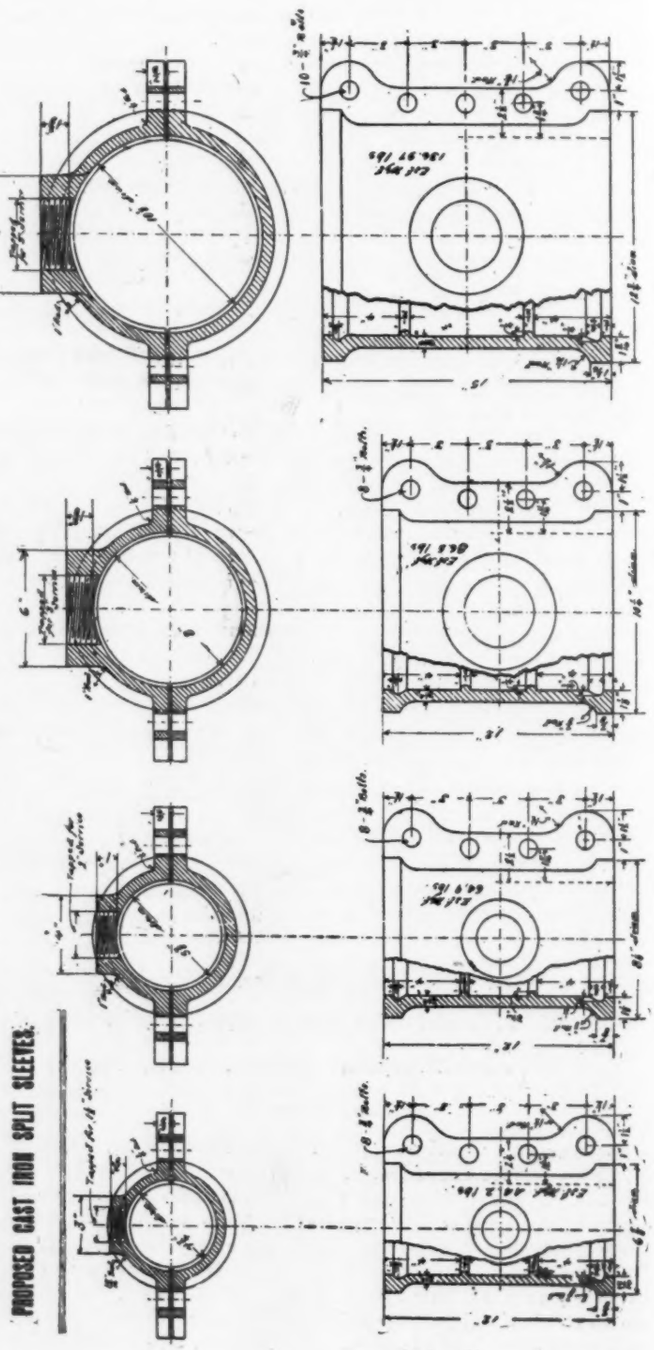
(To be Continued.)

[Continued from Page 185.]

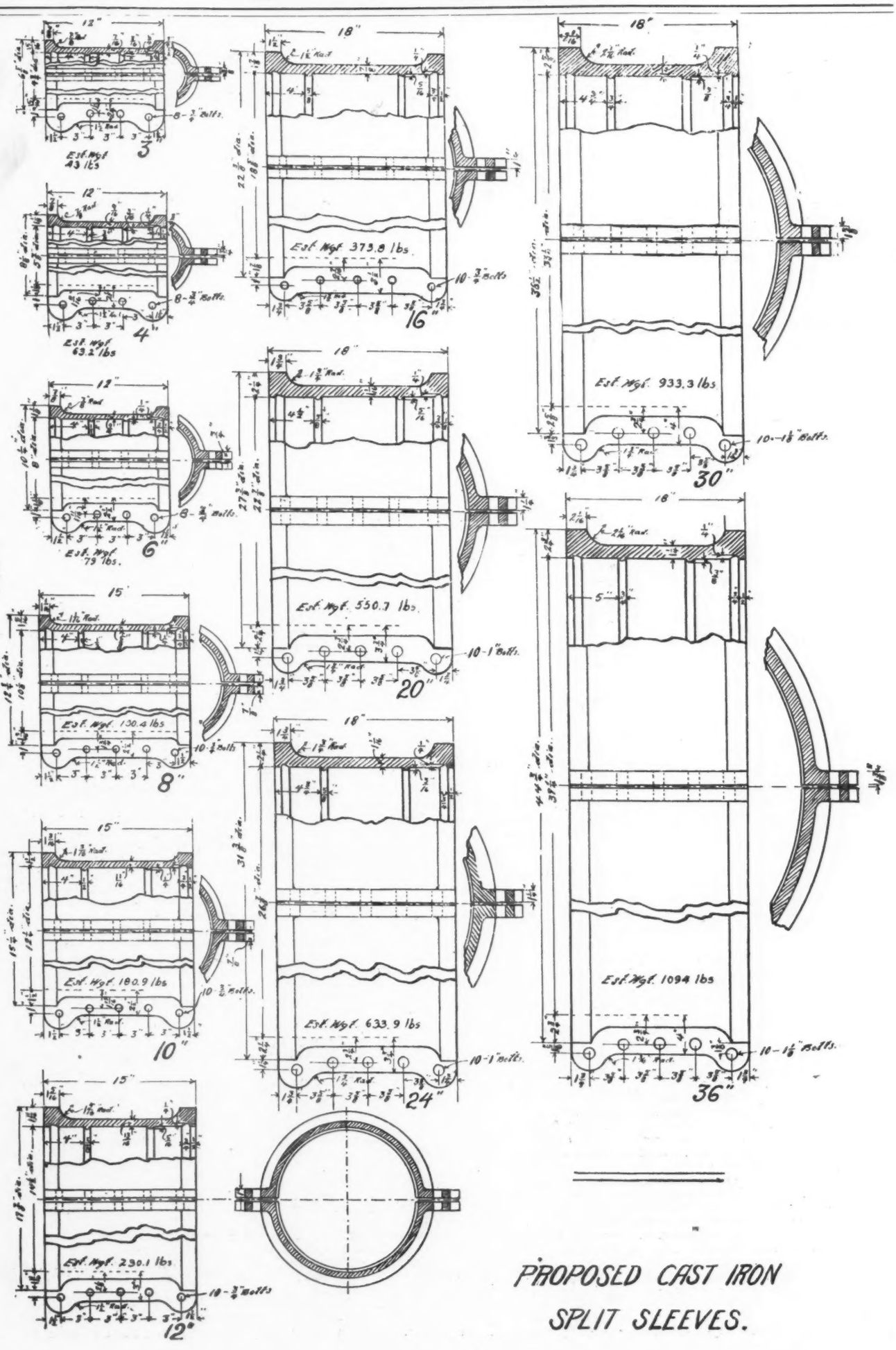
Report of Progress of the Sub-Committee on Pipe Standards, American Gas Institute.

[Submitted to the Third Annual Meeting of the American Gas Institute.]

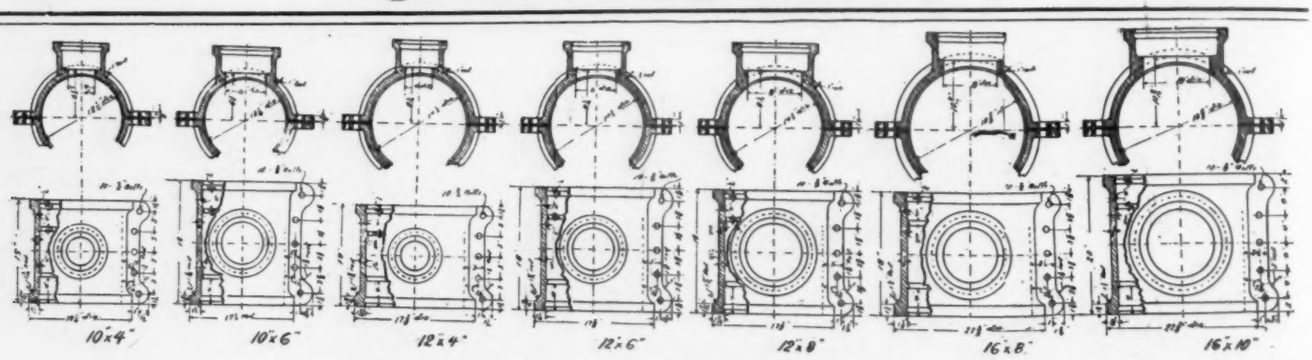
In order will be found the final illustrations going with the text of the above report.



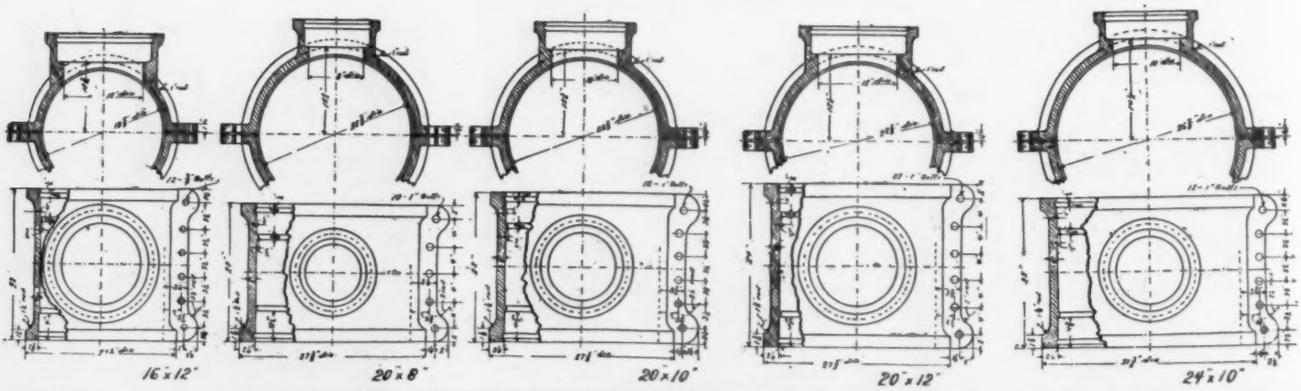
PROPOSED CAST IRON SPLIT SLEEVES.



PROPOSED CAST IRON SPLIT SLEEVES.



PROPOSED CAST IRON HUB SLEEVES.



(Concluded from page 188.)

The Consumer.

[Prepared for the Third Annual Meeting of the National Commercial Gas Association, by Mr. C. W. HARE, Philadelphia, Pa.]

Discussion.

Mr. Young—I think we are to be congratulated upon the practical treatment of this important subject, by the writer of the paper. We are all apt to consider this an abstract question. We picture in our mind a composite entity, covering all of our customers. This question is a practical one. Mr. Hare brings out a point I think important. We have been trying to forget the fact that there is such a thing as a complaint desk. We ought to encourage our customers to complain. We all know that after the customer has made a complaint, if the cause of complaint is eliminated and he is satisfied, he becomes one of our best friends. So we must treat our customers as individuals, convince them we are their friends, that we have something to sell them that they need, that we are not pushing anything they don't need. Sometimes our canvassers may in their anxiety to place an appliance, have installed something which the customer does not want and should not have. That is wrong. The customer should be given nothing but what he needs. We should not try to sell him too much gas; we should only sell the amount of gas he needs. A customer should not be given more gas than he needs for his arc lamps. If a 3-mantle arc is sufficient, he should have a 3 and not a 5. This subject, as I said, is a very important one.

Mr. Stannard—I would like to call attention to Mr. Hare's paper regarding the qualifications of the man at the complaint window. This man occupies a most important position, and if he is qualified he can make or lose the company's reputation. He can mold public opinion, and if he molds it favorably he is adding to the company's assets materially. Some time ago we tried an experiment in placing at the complaint window a man who was an engineer, and when I speak of him as an engineer, I speak of him as not only a college graduate or technical man merely, but he had been through the mill of our company, working in the various departments, and had served some years with us getting practical experience. He was, therefore, fully versed in the trouble work of the complaint window. We found this man could readily understand the consumer when he attempted to explain to him the nature of the complaint. We found him a most competent man to care for the complaints which he must personally receive. I think a man, to care for the complaint window, should not only be of pleasant address, but should be thoroughly able at all times to control his temper, to converse pleasantly and agreeably with the consumers, and be a man of experience, possessing engineering ability. One step farther as to the qualifications of the man. If you have the right man at the window often he will succeed, not only in remedying the complaint and making the consumer a friend of the company, but he may carry it a step farther. He may manage it in such a way that often new additional business can be secured from the man who turned in the complaint, which is a most important feature. The representatives should be notified of all complaints turned in, so they can call on the man and be sure that the complaint has been properly remedied. In this way we can often secure additional business. In fact, you will be surprised at the large amount of business which can be so secured. Even people who complain of large bills, after the bill has been explained to their satisfaction, will buy additional appliances. When this is done in a proper manner we find the consumer is pleased with the attention he gets and we are pleased with the additional business we secure.

The President—The local committee in their enthusiasm, in working up this convention, have started something. You will see the evidence of it a little later on. Captain S. A. Staunton, of the United States Navy, will be here in a few minutes to address the gathering on the possibility of using gas house stokers in time of war. I don't think we want to pass upon the practicability of that thing at this time, but it is a matter that will probably be brought to the attention of the industry later on.

Mr. Addicks—Just a few words in continuation of what has been said on one phase of the subject that has not been touched upon, in the matter of hearing complaints. It is this: Probably more than 50 per cent. of the complaints we get come to us in the first place over the telephone. The consumer, on getting a bill he is not satisfied with, immediately calls the company up about it, and thinks he is talking to some one who has authority and can answer any questions he may ask, and so I say, it takes an exceptionally good man to be the first one to go to the telephone to answer calls. If we can afford to have a good, high-class man at the complaint window, to speak to people who come in when he can see them face-to-face, and can read their countenances to a certain extent before he commences talking, there is probably a good bit to be avoided; but when a complaint of some kind comes in over the telephone it takes a good deal of care on the part of the person answering the call to meet them on the right ground. Complaints answered over the 'phone are sometimes apt to be troublesome, and so I say that, while our complaint man should be the highest class man possible, the person who goes to the 'phone should not be a second-class person.

Mr. Viles—There is much food for thought in Mr. Hare's paper, and the question is, how far we wish to go in seeking complaints, or straightening them out. In Minneapolis, where we sent out postal cards with every gas bill for one or two months, asking for complaints. The customer may want to know how to read a gas meter, or the gas stove may not work properly, and we give these communications immediate attention. The cards are answered by lady demonstrators or fitters, who call and put everything in good shape, and we find that we get lots of complaints which you would not get unless you went after them. We often advertise in the newspapers for complaints. When a complaint comes in of a high bill we take the bills for the last 12 months and carry it down to whatever it amounts to each day, and we sometimes find where the bills are large it has been a long month instead of a short month. Perhaps the bill is for 34 days, while the last one they had was for 26 days. The demonstrators and the people who make these calls are thoroughly posted on the use of gas appliances. They know how to adjust a gas range. If it is something they cannot do a qualified person is sent who can leave things in perfect condition. If it is a meter complaint we advise them to have the city

inspector test the meter, and I want to say that if you don't have a city inspector, get one. It is the best way of satisfying the customer.

Mr. Rogers –A vital thought in the paper is that the complaints should be individualized. We can no more make rules for classifying them than a physician in a hospital can make rules for classifying cases. Of course, in a large business, it is perhaps difficult not to do it, but it is important to have a man of good judgment on the complaint—I was going to say complaint desk—but I would remove the word complaint, and then if the man at that counter is not able to satisfy the consumer, I think the most important duty of the manager is to keep on the job himself. Someone in the office should be able to tell the difference between a complaint which is made for the purpose of delaying the payment of bills and a genuine complaint. I have discovered some curious reasons for complaints. In one late case a lady called on the complaint counter, stating that her family had been out of town for months, and the bill was twice as large as it had been before in August. We tried to give the matter attention and in the afternoon of the same day her husband came to me and said: "For goodness sake take this money. My wife has been away for a month, but I have been having a couple of little poker parties. Take the money and send her a corrected bill." That, gentlemen, was a complaint which the man at the counter could not deal with, because the man who made that confession wanted to make it to someone of his own class. I have a complaint meter, that is a meter with which I suppose you are all familiar, which registers the consumption each hour of the 24. We have one in our outfit for about 400,000 consumers, and use it once in a while with good effect. The cashier of one of our banks complained that his gas bill was too high. Of course, the gentleman said, he went through the regulation form of getting out 12 months' consumption, and showing how much he had used per day; but that did not satisfy him. Finally we sent the complaint man and found that between 2 A.M. and 5 A.M., he was using about 300 feet a day. I visited the gentleman in his house—it seemed they had two servants. The senior maid was accommodated in a steam heated room, but the second girl slept in a room which had no steam heat, and the lady of the house, in the kindness of her heart, had given her a gas heating stove, to use when she went to bed, and got up in the morning, but on cold nights the girl used the stove from 2 to 5 o'clock in the morning. I also remember a case of a customer's high bill which was due to the efforts of the father to teach his young boy habits of economy. He told the boy if he would look after paying the gas bill before the tenth of each month, he could have the discount. So the boy, having the amount of discount in mind, kept 12 lights burning in the attic all night. But, gentlemen, if you look the matter seriously as Mr. Hare has done, there is no doubt that, according to the size of our establishment—if it is what is known as a 1-man outfit—that man must meet the people who make complaints. If it were larger, that man should have good assistants. If it were in one of our leading cities, you must have competent people to meet the consumers, and finally if the complaint is so strong that it gets by, it should be taken up finally by the manager.

Mr. Dudley—In connection with our complaint work, we found marked difficulty in establishing a schedule time in which orders are to be fulfilled. The average consumer leaving a complaint in the office is told that the order is to be attended to, and before the schedule was established, we found the complaint clerk would give them most any answer. Tell them it would be a matter of a few days and we found that in some of these cases we would get two or three complaints. Nothing enrages a consumer more than to be promised a stove one day and have it come a week later. Now we have a schedule to cover this. For instance, if an order is to take 3 days, we give them 4 days, and always deliver it within the four, and we find that by doing so we satisfy the consumer.

Mr. Cohn—The difficulties and embarassments that come out of the limited space usually allotted to the complaint counter in an office, which causes the complaint where there is more than one at the counter complaining to be heard by others, are many. It is a source of embarassment to the complaint clerk in properly handling complaints, and tends to accentuate the complaint of the person who is listening to the other. I personally have not been able to work out that problem of how to handle that condition. I have so far insisted on important complaints being taken up not at the counter, but behind the counter, at a sitting desk, where books and papers and records can be laid before the consumer, and then again at times, we invite the consumer into a private office. Personally I think the ideal way would be to handle complaints in private offices, to have a series of private offices, where complaints could be made and taken up not within the hearing of other persons. I think that this consideration would please the consumer and would materially assist the complaint man in handling the matter properly. One other phase of this complaint work, to which I wish to call your attention is the economical value of complaints to gas companies. They are looked upon as being undesirable and expensive. I don't take that view of complaints. They offer an excellent opportunity to educate the complaint along the lines of the policy of the company and the methods pursued, and very frequently they turn a man who is hostile to the company into a very friendly consumer, and have a decided value to the company.

Mr. Rushin –I beg to differ with my friend from Baltimore. If you have anything good, why do you want it in a private office? If the complaint is good, let it come out and let everyone hear it. If you are ashamed of your clerk, put him in a private office. If he is good, put him out front. That is what you want in your complaint department. Everyone in the world is good, so bring that good out of the man at the complaint counter and invite complaints, advertise for them and let the people come up with them. Have a man who knows his business and who can say the right thing at the right time. You want something behind a complaint counter besides a lot of men in their shirt sleeves, and you want to teach them courtesy to one another. When one speaks to another don't let him answer in a rough tone. Have something behind your complaint counter to attract the consumer. In our office we have a big gas sign—not an electric sign. They wanted us to have that, but I wouldn't—and it runs across the back of the complaint counter: "Cook with Gas." When I go back, I will change that and make it "Light with Gas." You want to have something attractive at your compaint counter. If the man there knows his business, that is the man who can handle complaints as he should, whether he is an engineer or anything else. Get the right man and teach him everything you can. If he won't learn, get somebody who will.

Mr. Hare—I wish to say I do not think it possible to close this topic. It is always open and it is proper that it should be. It necessarily must be of vital importance to keep our consumers satisfied, and it is particularly interesting to think out the smallest details. One gentleman remarked on the telephone service—a small thing perhaps you will think; but I know of many instances where a rough answer over the 'phone has done inestimable harm. I won't take up any more of your time, but I do want to feel that in coming to a meeting of this character I can go away from it with a great deal of additional help, and I think the discussion, which you have just had, has benefited me and I hope it has the rest of the gentlemen.

Sad News.

The President—You probably noticed the absence of the Secretary, and now I have a very sad announcement to make. Mr. Bigelow received a telegram on Monday that his mother had died in Connecticut, but kept the sad news to himself until yesterday, attending to all his duties as Secretary and Treasurer of the Association in his usual able way. But yesterday afternoon he had to leave to attend her funeral. I am sure you all feel the regret the officers of this Association do at this announcement. I think it would be quite suitable if some action were taken or a committee appointed or something of that sort.

It was ordered that a committee of three be appointed by the Chair to draft resolutions of sympathy and regret.

The President—I now want to introduce Mr. A. Cressy Morrison, Manager of the local committee, who will have something to say to you.

Stokers and the Navy.

Mr. Morrison—During the work of our committee, a matter came to the attention of the committee, and will come to the attention of the gas companies of the country through that committee, which I think is utterly new to America. In England, the necessity for stokers in the Navy has been so great, the calling is so arduous and the difficulties of securing proper men have been so accentuated in times of emergency, that the English government began to seek a source of supply of brain and brawn and muscle and ability to withstand the heat, to see if they could not enlist into the service of the Navy for times of emergency a character of men who could be depended upon to render good service in the furnace room. As a result of that search, it was found that the gas stokers of England were a possible means of solving the condition. The investigation went so far that a number of gas stokers were enlisted. I am informed that something like two or three thousand are now so enlisted and the enlistment has been so successful and the men have been so sturdy and so well trained and so fitted for their duties, that the English government has decided to continue the experiment and the result has been satisfactory in all directions. This condition has attracted the attention of the United States Navy Department and they believe that the gas industry of America is none less patriotic than the gas industry of England. And so they have decided to send a delegate to this Convention to tell us the exact conditions in this and other countries and to submit through this august body to the gas companies of this country the questions and suggestions and propositions which must be considered before any decided action can be taken. It involves legislation, it involves physical examination, it involves the certainty of the call to service in case of emergency, and it involves some of the more intimate relations of your employees and yourselves. The General Board of the Navy Department has decided to present this matter through one of its members, Captain S. A. Staunton, of that Board, who will address you on that subject; and, gentlemen, it seems to me particularly fitting that a patriotic address should be made in a patriotic building So it is with peculiar pleasure, gentlemen, I present Captain S. A. Staunton, of the United States Navy.

Address of Captain Staunton.

The Chairman of your Exposition Committee, Mr. John C. D. Clark, has addressed letters to Admiral Dewey, Admiral Evans and to Admiral Pillsbury, Chief of the Bureau of Navigation, Navy Department, in reference to the practicability of utilizing the experience and endurance of gas and coke stokers of the gas industry of the United States, by enrolling them as naval reserve firemen in a manner similar to that which has been employed in Great Britain for a similar purpose.

It was not practicable for these officers of flag rank and experience to accept the kind invitation of your Chairman to appear before your Association and present their views upon this subject. However, the Navy Department has, after correspondence with Mr. Clark, directed me to appear as its representative to confer with you, and to suggest such legislative measures as might appear feasible, and which the Navy Department would be willing to indorse.

The importance of reserves organized and trained, or at least en-

rolled and subject to call, for the military services of a country dependent upon voluntary enlistment, is a subject which has received much attention. When the sudden expansion, incident upon the outbreak of war, arrives, with its serious strain upon every military agency, the advantage of having men ready to fill up the regular naval and military organizations to war strength, to provide new organizations, to complete the auxiliary and staff corps and to fill vacancies occurring later by casualties of service need only be stated in order to be fully recognized.

In countries like those of Europe, which have compulsory military service, the question of reserves, as well as that of men serving under the colors, is easily arranged. In these countries the original tribal duty of all young men to be prepared for war is still recognized and remains a feature of the social and political organization. A suitable part of the male population is called to war, or to preparation for war, as a duty without regard to individual will or preference, simply because the State demands such service of its citizens of appropriate age. Men whose period of active service is passed are retained in a reserve, subject to call in emergency until a certain age has been reached, and here, again, it is not a question of individual consent, but one which the State imposes upon its citizens.

In Great Britain and the United States a contrary system prevails, and the ordinary conditions of military and naval service are voluntary. The inherent right of National self-defense undoubtedly carries with it in any country the right of compulsory military service, and this right was formerly exercised in Great Britain by irregular and arbitrary impressment for the fleet, and was exercised extensively by the United States to recruit its armies in the War of Secession. But in all preparations for war in time of peace, and probably as well also in the prosecution of any war not seriously felt to be a national menace, the volunteer system would not be departed from, and compulsory service would not be supported by public opinion. In these countries, therefore, the question of reserves becomes a more difficult one and is met by various devices for securing the interest, willingness and preparedness to serve of a suitable portion of its population, either of men who have had previous service under the flag, or of others who, not having benefited by such service, are still, by similarity of occupation, physical excellence and youth well-suited to endure the burdens and hardships of war.

The feature of this problem, which immediately interests those here present at this time, is the question of reserves for the Navy. In Great Britain this has received special attention for many years. In the United States since our Navy began to assume its present proportions, the subject of suitable reserves has given rise to considerable State legislation and to a number of measures proposed in the Congress of the United States, but not yet enacted into law.

About 20 years ago, the movement for the organization of a naval militia began. Bills were introduced into Congress to encourage and support this movement, but failed to pass. They formed, however, a pattern for State legislation which was made effective, has had a wide extension and a very considerable success. This movement always received the encouragement and support of the Navy Department, which advised in the framing of the bills introduced in Congress, and also gave all possible advice and assistance in State legislation. During the Spanish-American War about 4,000 officers and men of the naval militia came into the naval service. The President had no authority to call them into the service of the United States, but the governors of the States granted them leave of absence, or permitted them to resign from the naval militia, in order to enlist in the navy, and their State organizations, upon entering the regular service, were kept intact so far as it was practicable to do. They rendered valuable service. Nevertheless, no Federal legislation has yet been made directly applicable to the organization or discipline of a naval militia. In the first session of the Sixtieth Congress, a bill, H. R. 7620, was introduced by Mr. Foss, Chairman of the Naval Committee, the purpose of which was to place the naval militia upon the same footing with respect to the regular naval service as that in which the army militia, or organized National Guard has been placed by the so-called "Dick Bill," approved January 21, 1903. This would control the organization, discipline and training of the naval militia, and permit them to be called into service, in the discretion of the President of the United States, in time of war or imminent danger of war; but this bill failed to become a law.

In the Fifty-seventh Congress, Second Session, a bill, Senate 7083, was introduced by Mr. Perkins, of California, for the organization of a United States Naval Reserve, to be formed of men who were, or had been, engaged in a seafaring life, and such others as, in the opinion of the Navy Department, might be deemed well adapted for the service. This Naval Reserve was not to exceed a maximum of 20,000, was to be enrolled for 5 years, was to be liable to a call to active service in case of war, or when war is imminent, and in time of peace should perform such annual drills, exercises, or courses of study as the Secretary of the Navy might determine. When serving under the flag, either in war or peace, the men were to be subject to naval discipline and were to receive naval pay and allowances. This bill also failed to become a law. Probably a dozen bills to establish a Naval Reserve, and to give a national status to the naval militia, have been presented in Congress in the past 20 years.

Although there has been no direct legislation by Congress on this account, the existence of the naval militia organizations has been recognized in appropriations and in facilities for drill and instruction at sea. In the early days of the State organizations, they were exercised in regularly commissioned ships during brief periods of time. More recently certain naval vessels have been turned over to the States for the use of the naval-militia.

Beginning in the year 1899 an appropriation of $60,000 per annum was made by Congress for the equipment and arming of the naval militia of the several States, and the printing of books for their instruction, to be expended under the instruction of the Secretary of the Navy, and allotted according to the strength of the several organizations. The appropriation has recently been increased to $100,000. The United States has, therefore, exercised a fostering influence over these State organizations, which has tended to secure a uniform standard of instruction and discipline similar to that obtaining in the regular navy.

There is a difference in our terms between the naval militia and the naval reserve, which it might be as well to define at this point. The term "naval militia" applies to those State organizations which have been in existence in greater or less strength and number for the last 18 years. The "naval reserve," whether a reserve of seamen, artisans or of firemen, were legislation made effective, would be a body of volunteers enrolled directly by the United States authorities and responsible only to them. They would be enrolled, not organized, having a contract with the government to obey the call of the President for active service at the outbreak of war or when war may be imminent; also under certain conditions to obey annual calls in time of peace for a certain period of drill and instruction, given at United States naval stations or in United States ships. The naval militia up to this point have been wholly State bodies. The naval reserve would be a national body.

The above, while not directly applicable to the enrollment of gas and coke stokers, yet bears upon the general subject and indicates the efforts which have already been made in similar directions, and the degree of study and attention which the subject has received, and the conditions of the organization of a reserve, whether for service in the fire or engine room of a man-of-war, or for service on their battery decks and in their turrets, are practically the same.

The old idea of recruiting a navy was to obtain the necessary supply of men from the merchant marine, from men who had the habit of the sea. This idea is no longer held to be wholly applicable, although the habit of the sea is still a valuable quality, as it involves the capacity to live contentedly and healthfully in the conditions which prevail on board ship. But in former days the difference between a merchant vessel and a man-of-war, both propelled by sails, existed only in the fact that the latter carried weapons while the former did not. Men with merchant training were naturally suitable for transfer to the deck of a man-of-war, and already able to perform a large proportion of their duties in the new vessel. Gunnery also was of the crudest and a brief period of instruction made a man capable of manning the rough and inaccurate weapons of that day. There was no machinery. Everything was done by hand power.

Gradual development has changed these conditions. Men-of-war now contain masses of machinery; all work is done by steam power or by hydraulic or electric power generated by steam. Sails are no longer in existence, and while a similar change has taken place in merchant vessels, they being now propelled almost entirely by steam and doing a greater part of their work by machinery, yet the change in merchant vessels has not been so great or so extensively differentiated as in naval vessels.

Technical training for naval recruits is now much to be desired. The atmosphere of a man-of-war bears some resemblance in its technical side to that of a great factory. Varied mechanical appliances are in operation. As the source of all this power is steam, that part of the crew charged with the duties of producing this power is of vital importance, and its capacity for this work, both in experience and endurance, is to be seriously considered.

Great Britain, and we need consider among foreign countries in this connection only Great Britain, since all continental European countries have a compulsory system, and Japan has the same system—has several branches of naval reserve—and secures the services of men from every class whose occupation and experience fit them for service in the royal navy in time of war. She enrolls merchant firemen, in which class she hopes to obtain a considerable number, but she does not overlook the fact that the merchant fleet cannot be wholly stripped at any time of an integral part of its crews and that the supply of merchant firemen for naval purposes must always be limited. In recent years she has paid attention to the enrollment of gas and electrical stokers, practically the same class of men whose services are suggested by you in this connection. In this class of men the requirements for enrollment in Great Britain are briefly as follows:

1. Not less than 2 years' experience in gas or electric light factories or other works as firemen.
2. Satisfactory evidence of proficiency and good conduct.
3. From 21 to 35 years of age.
4. A requirement of height, chest measurement, physical condition.
5. To serve 3 months before being entitled to a retainer.
6. Instruction on board one of His Majesty's ships and to pass a test of efficiency.
7. A certain period of each year, not less than 14 days, when they are required to attend for instruction and drill at a shore station or in a ship of the fleet.
8. They must serve as firemen in the fleet when called out by royal proclamation in time of emergency.

They receive an annual compensation or retaining fee of $30 a year, and during war service, also while on service in time of peace for drill or instruction, they receive the regular naval pay and allowances of their rating. They are pensioned for injuries or wounds received while so employed, and if life is lost while on such service their widows and children receive pensions, the same as those of men

of the regular navy. They receive certain clothing allowances while on service.

Assuming that the British policy is one which, in its priucipal features, the United States would follow in order to enroll the same class of men and accomplish the same objects, the following may be laid down in general terms as the requirements which would be demanded of men enrolling as naval reserve firemen, and the character of compensation which they would receive:

1. They would be American citizens, men of good character and efficient in their calling as stokers, which fact would be certified to generally by their employers.
2. They would be of good health and physique, passing an examination to this effect before a naval surgeon, and they would be within certain ages, probably from 21 to 35, preferably unmarried.
3. The instrument of enrollment would bind them to certain conditions of service in emergency, that is, in the event of war or threatened war; and to obey the call of the President summoning them to such service.
4. They would be subject to physical examination by a naval surgeon and personal inspection by a recruiting officer as often as might be deemed necessary, not more than once each year, to determine their continued physical competency and readiness for service.
5. They would receive a retainer of $ ... a year.
6. They would receive, when called into the service of the United States, a credit of $.... for clothing outfit and the pay of their rating in the regular service.
7. Upon being called into service, they would report at such place as might be designed and their expenses of travel would be paid.
8. If injured while in the service of the United States, either in peace or war as a result of such service, they would be placed upon the same terms as to pensions as the regularly enlisted men of the naval service.

The Navy Department would approve a bill embodying the above provisions, and should it find a sufficient degree of encouragement among the gas and coke stokers and the companies employing them, it would take the measures to initiate such legislation and to urge its passage. [Applause.]

The President called upon Mr. Kirchberger, of New York, who thus replied to Captain Staunton.

RESPONSE BY MR. M. KIRCHBERGER.

If I assume the pleasure of answering our honored guest, I feel an explanation is necessary, as I can neither lay claim to any seniority in this Association, nor to a very good condition of my voice, and it is, therefore, to my naval record that I have to look in order to get a standing in this court. Sailing 200,000 miles on the seas is not bad for a landlubber, and if this should not be enough, I would have to take my wife's record of 150,000 miles, and add it to mine and make a unit of 350,000, and if this is not enough, the surroundings in which we meet bring back to my mind a military record.

It was during one of the early trips across the Atlantic that it happened. I was interested in an auction pool and had pinned my faith to a big record, and, therefore, bought the high field as a junior partner. The weather was beautiful, sea calm, not a breeze to annoy us. In my mind I counted my chips, but, lo and behold, when the record was published, it was the lowest on this entire voyage. I approached an officer and asked him if his ship was played out, or if it could not make good time under prevailing conditions, as it was apparent that speed was not in her. He gave me a crushing smile and informed me that it was this very weather which prevented the ship from going faster, since the worst thing that could happen to an ocean greyhound is to sail under the wind, for the firemen were unable to stick to their post. Since that time I have often seen that, under such conditions, out of from 100 to 150 firemen that are necessary to man one of our modern 22 to 25-mile steamers, half are in the hospital and the other half a sad, emaciated lot. One of our generals once remarked that "War is hell." He was never near the furnace of a fast-going ocean vessel or he would have realized what real "hell" is, and that "the man behind the gun" is not the only hero on a ship. It is in this connection that my military experience gives me food for thought. On the vessel of the merchant marine these men are taken promiscuously, never mind what their antecedents are or from where they come. Do you not see in this matter a reason why the gas fraternity should co-operate with the government, if for nothing else than as a graduating school for men from their furnaces? In the German army every man drafted is closely examined as to his abilities and qualifications. They will not take a man from the lowlands for a mountain climber, nor will they take a man from the mountains to man their ships, and even in the units of single regiments and battalions every man is challenged as to what particular work he can perform. Over 25 per cent. of the soldiers in a regiment are commandered to special duty. If a man is a tailor or his father was a tailor, we will find him in the regimental tailor shop. If his mother was a cook, the chances are he will prepare the food for his comrades. If he is a butcher, you may find him in the barber shop, and so we find all talents utilized, each man being employed in that class of work for which his intellectual and physical qualities appear to make him most adapted. Nor is this in my opinion the only connecting link between the Association and the government. Though I have not had the pleasure of an interview with any of the crowned heads, I know from best authority that the English government is making to-day serious experiments for installing gas engines in their fast cruisers, and we understand that two of these are now being equipped with such engines. If that is the case, and I do not know how far our naval authorities have looked into this, then I can see a time near at hand when you will have to get busy and get together, and in addressing our worthy guest and extending to him the thanks of this Association for coming to this meeting, I desire to express on behalf of this Association the unanimous sentimeut that, whenever this question of gas engine and its utility for the navy comes up, the government can absolutely depend upon the heartiest co-operation of this Association *in corpore* and of each individual member.

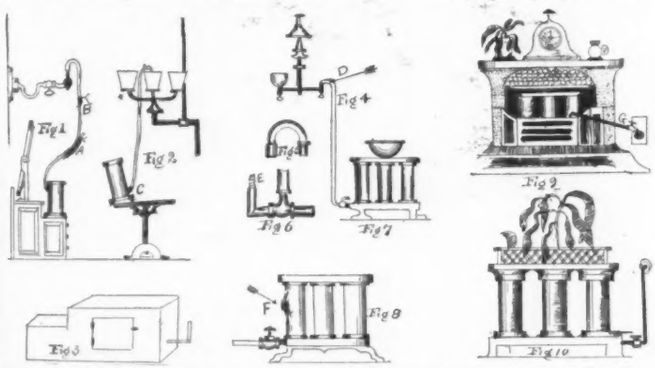
Upon motion of Mr. Shattuck, seconded by Mr. Clark and carried, Captain Staunton's speech was referred to the parent companies for consideration and action.

Use and Abuse of the Gas Stove.

[Prepared for the JOURNAL, by "R."]

I notice that certain publications are publishing things about the perils of the gas stove, and some of the scientific matter printed on the subject of the gas stove is really worth the while; but the gas stove, like every other modern invention of a mechanical character, is deadly only under certain conditions. The most approved automobile is perilous to the passengers, and to traffic in general, when it gets away from the man at the wheel, due to a mechanical defect in the gearing, as sometimes occurs. The steam boiler is not a very safe object to be near when the exhaust pipes are plugged, the safety valve out of order and a hot fire below with little water inside the boiler plates. The railway engine is quite a necessity to the human race, like the electrical cars, but when either gets off the track it is quite abominable.

And so it is with the gas stove. The country store, or the corner grocery man, who sells cheap gas stoves and does not himself understand the management of the same, is playing with the health of the people to whom he sells the stove; for, according to most recent information, the peril of the gas stove of to-day is not so much the liability of an explosion, for the reason that there is not much about a gas stove of up-to-date pattern to explode; but the danger element is, if any, in the likelihood of gases intermingling with air atoms, which atoms persons breathe in rooms. A man can stop up the key-



holes of the door, plug the windows tight, stuff rags into the door shambles and make his room fairly air-tight. He can then turn on the gas, and, without the aid of a gas stove, get enough gas direct from the pipes to commit suicide. A man can abuse the gas stove to the extent of filling a room with gas fumes. He can so arrange things that the air will be laden with escaping fumes, and, in the event of someone striking a match, the gases may explode and blow the window sashes out and scorch the whiskers from the man. So can any person neglect the mechanical fixings of the gas stove to the extent of rendering the same unsuitable for the service intended. Then there will be leakages of gases, foul odors and trouble. A surgeon upon entering a room of the kind would condemn the gas stove.

The writer is led to make these remarks after having listened to lectures by men of knowledge and science, who have undertaken to warn the people in their audiences concerning the utilization of gas stoves. Unfortunately many of the men do not carefully investigate. For example: In one room where a gas stove of well-known make was in use, the air of the apartment was really foul. Almost anyone would say the gas stove was at fault. I observed that the stove had been put on the edge of a washstand, as in Fig. 1. The hose pipe from the gas jet was patched and bound, as at *A* and *B*. The gas leaked at both points. The stove was laden with soot from flames from leaks of gas. In another room I saw a stove balanced on the edge of a tilting table top, like *C*, Fig. 2.

In another place, where they had cooking to do, a home-made, sheet iron affair was used, like in Fig. 3, without ventilation of any kind. The room was sure to be fouled with the fumes of the gases and everything near the jets was covered with a slimy, black soot. Again, in a house of refinement, where they should have known better, the rubber tube was adjusted to the gas tip overhead, as at *D*, Fig. 4. The weight of the tube dragged the turn in the hose downward, making the tube crack and leak at that point. It is best to have a regular metal gooseneck, as in Fig. 5, for a connection of this kind. Sometimes the type of threaded connection, shown at *E*, Fig. 6, can be employed with good results.

Now and then you will find a stove with a cylinder blow-out, as at *F*, Fig. 9. If the sheet metal cylinder is neglected month after month and corroding begins, the cylinder may get weakened at that point and expand and open with but little pressure. I have seen cylinders

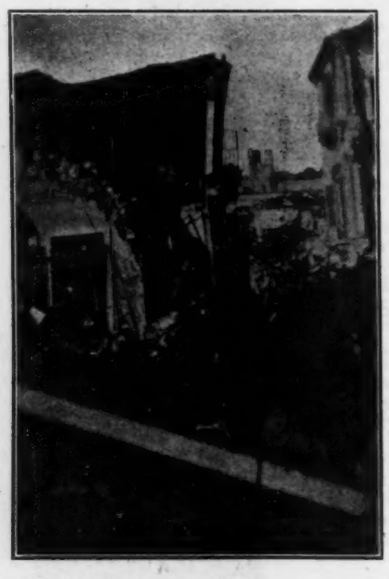
almost rusted through, due to water getting on the metal. Sometimes moisture will gather there and gradually eat into the metal. To try to make the stove do service when the cylinder is thus damaged is wrong. Odors will arise. Besides there is danger of fire. I have seen places in defective cylinders closed or partly closed by binding pieces of tin about the same with wire. You should send the stove to the shop for repairs. Lately some very well designed gas stove outfits have been made and fitted into the alcoves, or into an abandoned fireplace, as in Fig. 9. A connection is made with the gas pipe main, as at *G*. Some very good effects can be produced with adjustments of this kind by using mica colored fronts next the flame. I saw a gas arrangement in use by a party in a library that was arranged for a plant box above. The sand in the bottom of the box prevented an excess of heat getting to the roots of the plant.

The Ruin of Messina.—More Cheerful Report as to the Gas Works Staff and Plant.[1]

Distressing as has been the loss of life, we have more cheerful news to publish this week (Jan. 12) regarding the staff and works of the Continental Union Gas Company in the wrecked and mourning city of Messina. So far as it goes, what has now to be related, as the result of a report received by Mr. W. Martin, the Secretary of the Company, from M. Lacombe, the Agent General, will do something towards relieving the anxiety of those who are associated with the undertaking, both at home and abroad.

Fig. 1.—Remains of One of the Retort Houses.—The Chimney Shaft is Broken off just above the top of the Picture, and it was the falling top of this Chimney that Ruined the House.

So far as the destruction of the town is concerned, M. Lacombe says that the state of affairs is indeed fully as bad as words have enabled the newspapers to represent; but so far as the staff and works of the Company are concered, the earlier reports that were dispatched from various sources, in the first stages of panic in the town, were somewhat exaggerated. The Company's building, in which the Manager (Mr. F. Ruggeri) and his family dwelt, and in which were situated the offices, the shop for the sale of fittings, etc., a small electrical installation, and the lamplighters' quarters, is completely in ruins, and the Manager and his family are still buried beneath the heavy mass of fallen *dèbris*. The building was a large and extensive place,



g. 2.—The Wrecked Offices and Manager's Dwelling.—Beneath these Ruins Mr. Ruggeri is Buried.

1. *Journal of Gas Lighting.*

3-storied, and substantially built—quite as massive (says Mr. Martin) as the building in which are the Company's London offices in Drapers' Gardens. The building came down with a run, it being situated in the very center of the seismic wave. With regard to the staff and workmen, the names of about 16 clerks out of the 30 have now been received as having escaped death, and of about 80 workmen out of the 200 or so to whom the business gave employment. The stokers and others of the works' men were nearly all saved, because they mostly lived in the country; the section of workmen who appear to have suffered most being the lamplighters, who were probably on their rounds at the time of the earthquake, and were caught by the falling masonry and other wreckage.

Respecting the works, they are situated in the northern district on the front, about 1¼ miles from the center of the town, and it was the center of the town that received the full shock. The works were, therefore, somewhat distant from the area in which occurred the severest shock and effect. M. Lacombe (who, it will be remembered, was accompanied to Messina by Mr. P. S. Morton, of Genoa) reports that the gasholders and columns are intact; but the tanks are cracked rather badly. The retort houses have suffered chiefly through the falling of the chimneys, of which there were three on the works. The roofs were broken in by the falling material and injury was wrought to the superstructure of the benches—the hydraulic mains, and so on. The roofs of one or two of the other buildings were also broken through, owing to the same cause. The other plant—exhausters, boilers, purifiers, etc.—all seem to be in fairly good condition. The stock of coal, too, at the works, has not been washed away as feared, but is still in existence. Therefore, happily, the effect so far as the gas works are concerned is not nearly so serious as was originally feared from the messages that first came to hand from Messina.

Bureau of Information, The American Gas Institute.

BUREAU OF INFORMATION,
THE AMERICAN GAS INSTITUTE,
HEADQUARTERS, 716 LOCUST STREET, ST. LOUIS, MO.
W. A. BAEHR, Chairman.

The Bureau of Information, under date of the 30th ult., forwards the following question:

Question No. 48.—"What are the comparative merits, in the case of large companies, of making meter repairs under a 'piece work schedule' as compared with strictly day work?"

Items of Interest
FROM VARIOUS LOCALITIES.

MR. WALTER C. COLEMAN, who has had charge of the books of the Troy (N. Y.) Gas Company for several years, has been chosen Secretary and Treasurer of the Company, vice the late Mr. Charles E. Davenport. An excellent appointment, which does justice to Mr. Coleman and credit to the Company.

A SURPRISE was recently given to the owners of the Laclede Gas Light Company and the United Railways Company, both of St. Louis, Mo., when the resignation of Mr. John I. Beggs as President of both corporations was handed in some days ago to the respective Boards of Directors. The resignations are to be effective on and after April 1st. As the correspondent who forwarded this intimation remarks: "St. Louisains now have an opportunity to elect St. Louis men to head the three public utility corporations of the city."

THE proprietors of the North Shore Consolidated Gas Company, of Waukegan, Ills., have announced that hereafter the gross price will rule at $1.10 per 1,000 cubic feet, with 10 cents off on accounts settled within 10 days. This is really a concession of 15 cents from the gross rate only, the net remaining as heretofore.

THE Dawes-Geist combination, who recently secured control of the Detroit Gas Light and Coke Company, does not in any sense propose to invade the district of the Detroit City Company. The scheme is to supply gas to all sections of the 18th Ward of Detroit, thence on to and through the towns "down river." The concern has been given the name of the Suburban Gas Company, and it is capitalized in $600,000.

MENTION might be here made that plans, which are very much more than in a tentative state, for the construction of a modern gas plant by the owners of the Laclede Gas Light Company, are being considered. The estimates as to cost, so far as these have become known in any way to outsiders, vary between $10,000 000 and

$15,000,000. In connection with this undertaking the Public Improvements' Committee of the St. Louis City Council, has favorably reported the bill to vacate about 20 acres of land in the streets and alleys near the Mississippi river in the southern limits of the city, the fee to revert to the Laclede Gas Light Company. The latter has agreed to pay off $20,000 therefor. The Company owns all the land around the street ends which it is proposed to blot out.

"DEAR JOURNAL: Our 'easy boss,' as we like to dub him, may not have been responsible directly for the most enjoyable sleigh ride that the employees at and in the offices of the Newton and Watertown (Mass.) Gas Light Company assisted in some nights ago. At any rate, after it was over he smiled (you know how Mr. Leonard can smile) as he frequently inquired: 'Well; did you enjoy yourself?' We did; that is incontrovertible. The Newtonville Cab Company gave us its best conveyances; the weather was all to the good; the roads were well feathered, and the supper at Wellesley Inn, with the jolly proceedings during and after its putting away, will be remembered for many a day—and night too. May the Company and its boss never know another time of tribulation.—V. R."

THE annual meeting of the Knoxville (Tenn.) Gas Company has been again postponed. The day set this time is the 22d inst. Surely, the better the day the better the deed.

THE people who are peddling the bonds of the to-be-completed plant of the Citizens Gas Company, of Indianapolis, Ind., are announcing with much elation, and are offering the same with unction to the public this matter. As an evidence of the further worth of the "security" they say they have just closed a contract with the Barrett Manufacturing Company under which the latter agree to take the entire tar output of the Company, for a period or 3 years, with the right to renew the same for several years. There's added security for you! Perhaps!

THE evening of Wednesday the 27th ult., was notable in North Adams, Mass., for the complimentary dinner given to the employees of the North Adams Gas Company, by their retiring Manager, Col. Frank S. Richardson. Those who shared in it certainly must acknowledge that the bond between the Colonel and his men savored not of straining.

A SPECIAL meeting of the Directors of the Milwaukee (Wis.) Gas Light Company, called to frame suitable resolutions to the memory of Mr. John P. Murphy, for many years prominent in its management, reported the following:

"*Whereas*, It has pleased an all-wise Providence to call to his final rest our co-worker and Chairman, John P. Murphy, a member of the Company's Board of Directors for nearly 16 years; and

"*Whereas*, In his death this Company has lost an official whose unquestioned integrity, never failing geniality and conscientious worth won the respect and esteem of his associates and of all others with whom he came in contact; therefore, be it

"*Resolved*, By the officers and Directors of the Milwaukee Gas Light Company, that, in the death of John P. Murphy, a great loss has has been sustained—by the members of this Board of an esteemed friend, by the Company of an able and wise counsellor, and by the community of a man and citizen of sterling worth; be it further

"*Resolved*, That these resolutions be spread upon the records of this Board, and that a copy be sent to the family of our lamented friend and associate."

MR. SAMUEL KAHN has resigned from the engineering staff of the San Antonio (Tex.) Company to take up the duties of General Manager of the Union Light, Heat and Power Company, of Fargo, N. D. Mr. Kahn, of course, in this change goes up several rungs of the ladder leading to the top, and while the San Antonio Company will miss him much the Southwestern Gas and Electrical Association will miss him more, in that for some time back he has been the capable Editor of the Association's Question Box.

THE following was forwarded from St. Louis, under date of the 28th ult.: "Those who know Mr. A. S. B. Little cannot at some time or another fail to have heard his arguments on bricks versus blocks for the setting walls of retorts. However, many who heard the arguments preferred to leave the matter rest until the results of actual practice with the system were ready for inspection. Mr. Baehr, who is always on the alert for new means of improving his works, expressed his willingness to consider plans which eliminate the usual style of blocks. It is fairly well known that the Laclede folks have decided to adopt the Little plan in the benches which Evens & Howard are going to install in the Laclede plant. The system is also being tried on some benches of 6's in Ontario, and will also be employed on the special gas bench the Company is building in Lansing for melting metal.—L."

THE authorities of Pueblo, Col., have refused to grant an extension of 25 years to the franchise of the local Gas Company. If this extension had been granted the Company would have agreed to put its pipes into East Pueblo.

MR. G. H. CLAPP, of the Wilmington (O.) Gas Company, has been elected Secretary, Treasurer and General Manager of the Washington Court House (O.) Gas and Electric Company.

THE United Gas Improvement Company is under contract to erect a water gas set complete for the new works of the Weatherford (Tex.) Gas Light, Heat and Power Company.

THE H. P. Wright Investment Company, of Junction City, Kas., has been awarded a franchise for the operation of a gas and electric plant.

IT is reported that ½ million dollars will be expended by the Edison Electric Company in connection with improving the gas plant owned by it in Los Angeles, Cal.

AT the annual meeting of the La Crosse (Wis.) Gas and Electric Company the officers elected were: Directors, D. C. MacMillan, J. G. Felber, W. S. Cargill, E. M. Wing and P. M. Gelatt; President, Treasurer and General Manager, D. G. MacMillan; Secretary and Assistant General Manager, P. M. Gelatt.

THE permanent office building and headquarters of the Denver (Col.) Gas and Electric Company will be located on the plot at the intersection of 15th and Champa streets. The plot is 125 by 100 feet, and the building to be erected thereon will be of the highest type of modern business structure. The land cost $265,000 and the estimated cost of the structure is $500,000.

THE plant, properties and franchises of the Port Jervis (N. Y.) Electric Light, Gas, Power and Trolley Company were sold at Port Jervis, at public auction, at noon of the 27th ult. They were bought in by the Messrs. Wheeler, Curtis & Haight, representing the Knickerbocker Trust Company, of New York, to satisfy a judgment of $325,605.28, held by the Trust Company as Trustees for the bondholders. The reported high bid was $225,000. Our informant adds: "A reorganization will take place." The public lighting and traction utilities of Port Jervis have been often brought face-to-face with reorganization within the last 10 years.

MR. D. E. ROBINSON has resigned the position of General Manager of the Wooster (O.) Gas Company, which place he has acceptably filled for the past two years.

THIS item should be taken in connection with another on the like topic which precedes: "The Detroit and Suburban Gas Company, controlled by Messrs. R. C. Dawes, C. H. Geist and I. C. Eslton, Jr., has secured the property of the Detroit Gas and Coke Company, which Company operates under a number of franchises covering the southwest border of Detroit, known as Delray; also in the precincts of Wyandotte, Ford and Rouge and Springwells township. Judging from the way in which other properties controlled by these gentlemen are operated, extensive improvements will be made and an active campaign to increase the sale of gas will be carried on.—T. S. R."

AT the annual meeting of the Marshall (Mich.) Gas Company the officers chosen were: Directors, Renetta Hoffman, Carroll Collins, T. J. Garrett, C. E. Gorham and L. C. Collins; President and Treasurer, Carroll Collins; Vice-President, T. F. Garrett; Secretary, Renetta Hoffman.

THE Massachusetts Harbor and Land Commissioners have granted permission to the Fall River (Mass.) Gas Works Company to lay and maintain a 4-inch gas line across the Taunton river to carry and transport gas to the residents of the district known as Somerset.

THE Queens Borough Gas and Electric Company has been awarded a contract for the public lighting of certain streets of Cedarhurst. The contract calls for the placing of 140 lamps of the tungsten type, each lamp to yield 50 candles of light, and to be paid for at the rate of $30 each per annum. The contract is to run for 5 years from April first.

THE Citizens Gas and Electric Company, of Waterloo, Ia., is expending quite a sum of money in the establishing and equipment of a laboratory that will be second to none in the State. The Secretary of the Company (Mr. H. B. Maynard) is to have charge thereof.

THE authorities of Fort Atkinson, Wis., have granted a franchise to certain promoters for the right to construct and operate a gas works in the named place. Construction work will, it is said, be started in April, and it is estimated that $100,000 will be necessary to complete the plant on the scale at present proposed.

AT the annual meeting of the shareholders in the Mohawk Gas Company, Schenectady (N. Y.) district the Directors elected were: Messrs. H. Parsons, A. W. Burchard, E. W. Rice, Jr., H. W. Starr and J. O. Carr.

THE Suburban Gas Company, of Chester, Pa., recently came out with a timely and well-worded advertisement in the local newspapers warning the gas consumers against purchasing a certain device, the purport of which is the old, thin and worse than useless one of putting control of the pressure in irresponsible leads. One paragraph of the notice reads: "Governors are used in large, hilly cities, where there is a wide range in pressure, but they should be used then only under the direction of the Company's engineers, who understand these pressure conditions. The governors wherever required are always installed by the Company, free of expense."

The Market for Gas Securities.

The refusal of the U. S. Supreme Court to allow a rehearing of the rate case caused another break in Consolidated, which sold down this morning (Friday) to 116¾ to 117. The city companies, with the possible exception of the Mutual, will commence "paying-off" some time this month, and it is not at all unlikely that the Mutual will figure in very independent fashion in the near future in the rate case. You see, the Mutual's charter prohibits it from combining with anyone. A "wicked partner" is often useful to have handy.

The general gas share market is better than steady. We renew our advice that it might be profitable to keep a good look towards Chicago; also, in the instance of Laclede common.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

16 WALL STREET, NEW YORK CITY.

FEBRUARY 8.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked.*
Consolidated Gas Co.	$73,177,000	100	116¾	117
Central Union Gas Co.—				
1st 5's, due 1972, J. & J.	3,000,000	1,000	98	101
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	—	105
Mutual Gas Co.	3,500,000	100	130	160
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	99	101
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	37	43
1st Mtg. Gold Bds. 5 p. ct.	1,000,000	—	100	101
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	100	105
Con. 5's, due 1945, J. & J.	1,500,000	—	97	101
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	86	91
Standard	5,000,000	100	70	100
Preferred	5,000,000	100	100	125
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	100	105
The Brooklyn Union	15,000,000	1,000	121½	122
1st Con. 5's, due 1948, M. & N.	15,000,000	—	91½	92
Yonkers	299,650	500	130	—
Out-of-Town Companies.				
Bay State	50,000,000	50	1¼	1½
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	65
" 1st Mtg. 5's	500,000	1,000	95	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	63	66
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed Gold Bonds	7,660,000	1,000	104	106¼
Cincinnati Gas and Electric Co.	29,500,000	100	91¼	92
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. & Heating Co.	1,682,750	100	90¼	91
Preferred	3,036,500	100	75¼	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	11,000,000	100	—	105
Mortgages, 6's	3,600,000	—	—	118
Chesapeake, 1st 6's	1,000,000	—	—	—
Equitable, 1st 6's	910,000	—	—	—
Consolidated, 1st 5's	1,490,000	—	—	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	17
Con. Mtg. 5's	880,000	1,000	92	95
Bonds	75,000	—	—	100
Denver Gas and Electric	—	—	74½	75
Detroit City Gas Co	5,000,000	50	—	50
" Prior Lien 5's	4,619,000	1,000	97	100¼
Detroit Gas Co., 5's	881,000	1,000	75	80
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	39	40
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co., 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	190	200
Kansas City Gas Light Co., of Missouri	5,000,000	100	—	36
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede Gas Co., St. Louis	10,000,000	100	—	100
Preferred	2,500,000	100	60	90
Bonds	10,000,000	1,000	104	104¼
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas and Electric Co.				
" 1st Mtg. 6's	350,000	1,000	106	108¾
" 6 per cent. scrip, due 1910	100,000	25	60	60½
Massachusetts Gas Companies, of Boston	25,000,000	100	63	64
Preferred	25,000,000	100	91	91½
Montreal Gas Co., Canada	2,000,000	100	218	218¾
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	56	58
Bonds, 6's	6,000,000	—	137	138
Hudson County Gas Co., of New Jersey	10,500,000	—	112	113½
" Bonds, 5's	10,500,000	—	103	103¾
Indianapolis	2,000,000	—	60	70
" Bonds, 5's	2,050,000	—	104½	105
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	200,000	1,000	97	100
New Haven Gas Co.	2,000,000	25	200	—
Peoples Gas Lt. & Coke Co., Chicago	25,000,000	100	107¾	108
1st Mortgage	20,100,000	1,000	—	—
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104½	105½
San Francisco Gas Co., Cal.	15,500,000	—	—	—
St. Joseph Gas Co.—				
1st Mtg. 6's	751,000	1,000	92	—
St. Paul Gas Light Co.	1,500,000	100	45	47
1st Mortgages, 6's	650,000	1,000	113	116
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's	2,465,000	1,000	96¼	—
Syracuse Gas Co., N. Y.	1,975,000	100	50	55
Bonds	2,047,000	1,000	102	—
Washington (D. C.) Gas Co.	2,600,000	20	345	346½
1st Mortgage, 6's	600,000	—	—	—
Western Gas Co., Milwaukee	4,000,000	—	—	—
Wilmington (Del.) Gas Co.	600,000	50	230	—

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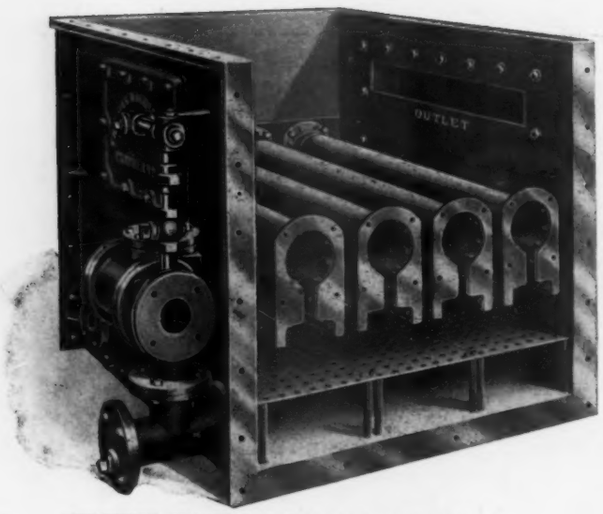

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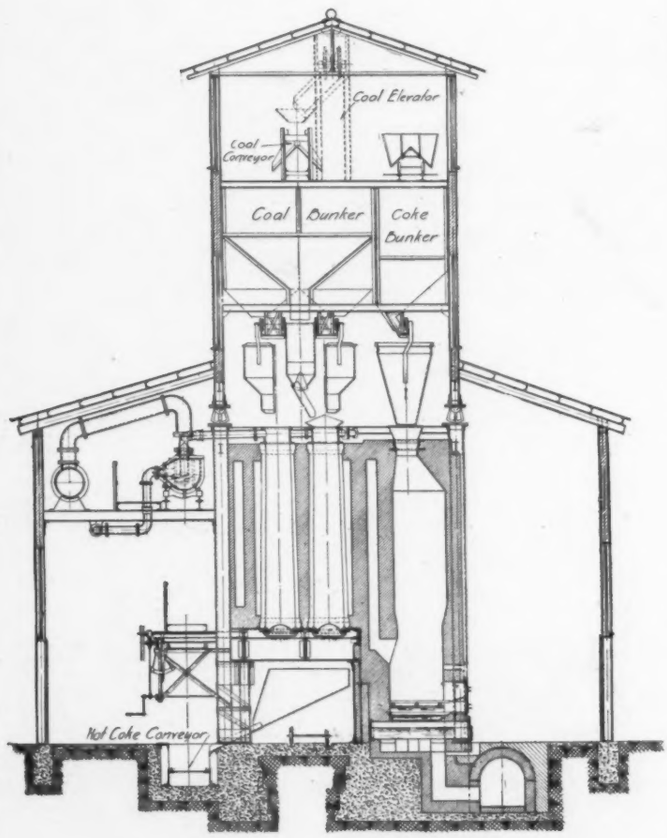
NEW YORK, N. Y.



Cross Section of Retort House System Koerting For Vertical Benches.

Dessau System of Vertical Retorts.

"The Only System in Successful Operation."

U. S. Patent No. 904043.

"Process Patent for the Carbonization of Coal in Vertical Retorts."

U. S. Patent No. 906187.

"Feeding Device."

U. S. Patent No. 899503.

"Retort House."

U. S. Patent No. 801268.

"Operating Mechanism for Bottom Mouthpieces."

339 Benches, with 3518 Retorts in operation and under construction.

TOTAL DAILY PRODUCING CAPACITY, 50,000,000 CUBIC FEET.

Amount of gas produced per man in 24 hours, 360,000 cu. ft.
Ten per cent. Increase in Yield.
Twenty to Forty per cent. Increase in Yield of Ammonia.
Best Quality of Coke.
Least percentage of Breeze. Low Fuel Consumption.

Tar produced low in Carbon.
Extreme low cost of Retort House Labor.
Minimum expense in wear and tear.
NO NAPHTHALENE.
NO CYANOGEN.

Correspondence Solicited.

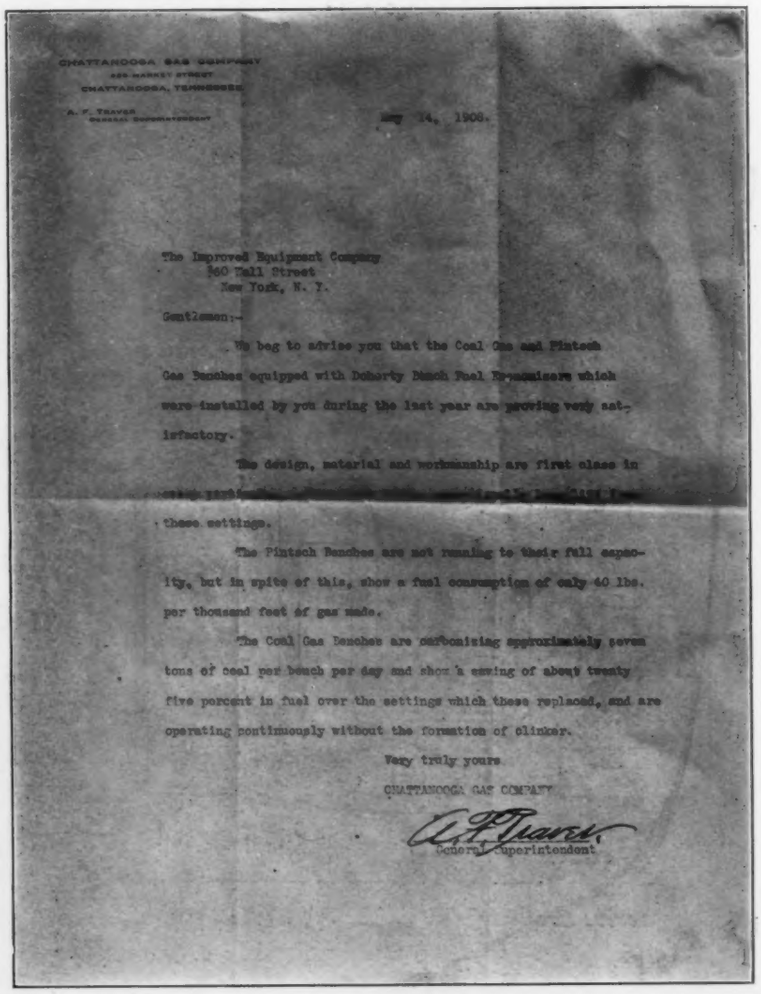
FREDERICK J. MAYER, General Manager.

WE STOP CLINKERS.

A line to us will bring one of our men to tell YOU how it can be done at YOUR Plant.

PARTIAL LIST OF PLANTS INSTALLED:

CHATTANOOCA, TENN.
KNOXVILLE, TENN.
DETROIT, MICH.
GRAND RAPIDS, MICH.
BATTLE CREEK, MICH.
FORT DODGE, IOWA.
MUSCATINE, IOWA.
LEBANON, PA.
MATTOON, ILLS.
DENVER, COLO.
SPOKANE, WASH.
WALLA WALLA, WASH.
YAKIMA, WASH.



CHATTANOOGA GAS COMPANY
CHATTANOOGA, TENNESSEE
A. F. TRAVER
General Superintendent

May 14, 1908.

The Improved Equipment Company
60 Wall Street
New York, N. Y.

Gentlemen:-

We beg to advise you that the Coal Gas and Pintsch Gas Benches equipped with Doherty Bench Fuel Economizers which were installed by you during the last year are proving very satisfactory.

The design, material and workmanship are first class in every particular, and we have [illegible] these settings.

The Pintsch Benches are not running to their full capacity, but in spite of this, show a fuel consumption of only 40 lbs. per thousand feet of gas made.

The Coal Gas Benches are carbonizing approximately seven tons of coal per bench per day and show a saving of about twenty five percent in fuel over the settings which these replaced, and are operating continuously without the formation of clinker.

Very truly yours
CHATTANOOGA GAS COMPANY
A. F. Traver
General Superintendent

Send for Bulletin No. 2.

THE IMPROVED EQUIPMENT COMPANY,

MAIN OFFICES:
60 WALL STREET, NEW YORK.

SOLE LICENSEES FOR THE DOHERTY BENCH FUEL ECONOMIZER.

PARKER-RUSSELL MINING AND MFG. CO.,

ST. LOUIS, MO.

NEW YORK OFFICE: 45 Broadway.

GAS RETORTS AND FIREBRICK.

Benches.—We erect GAS RETORT BENCHES with Horizontal retorts having closed ends, or Through retorts up to 20 feet in length.

Slopers.—Also, SLOPERS on improved lines for Inclined Retorts.

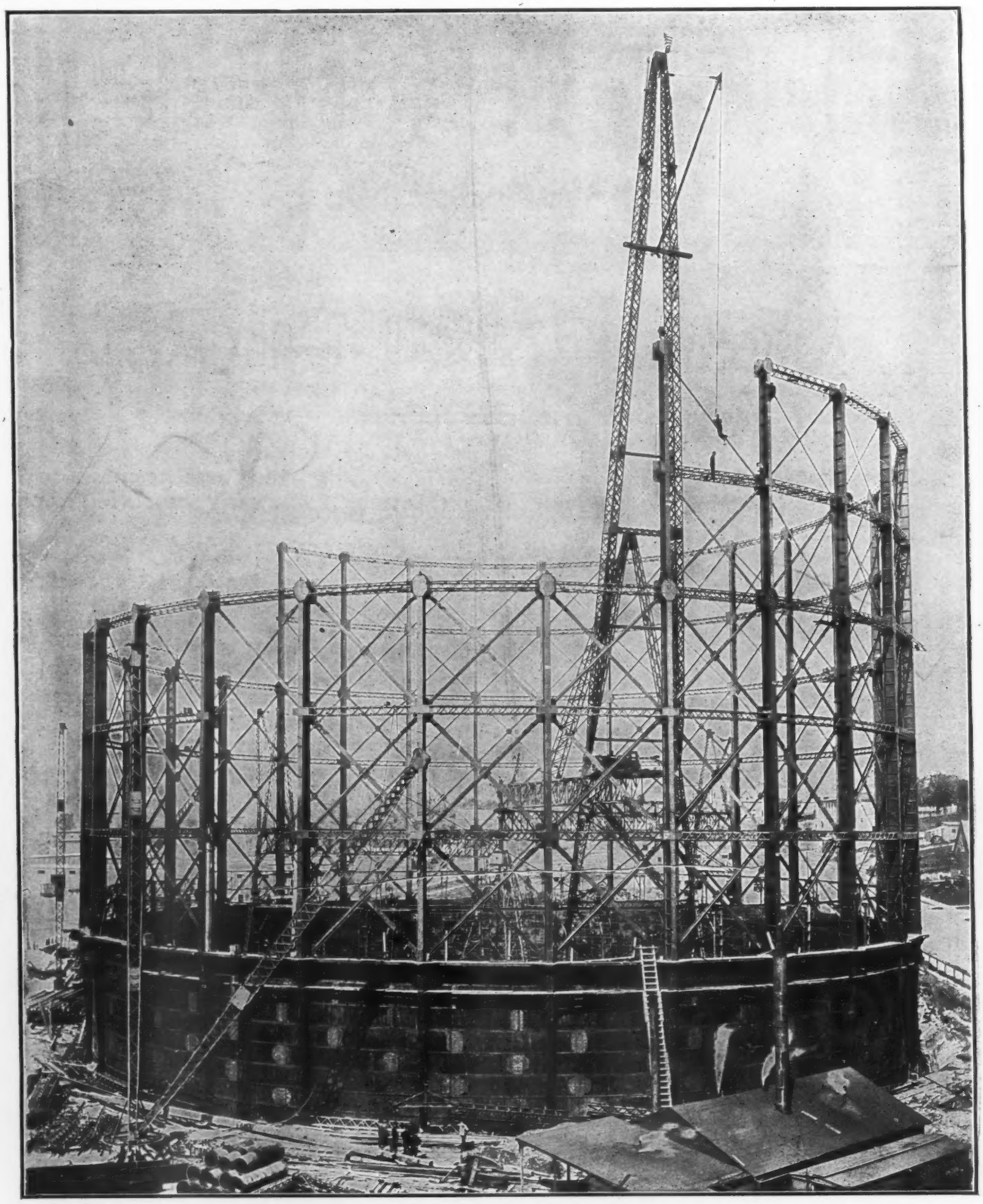
Stoking Machinery.—Sole Agents for U. S. and Canada for the Fiddes-Aldridge Simultaneous Discharging Charger. The "F.A.," or "One-Stroke" Machine. Cost of Carbonizing reduced to minimum. No Dust. Silent. No Waste of Coal. No Injury to Retorts.

Water Gas Linings.—We make a specialty of WATER GAS BLOCKS, and supply brick of superior grade for checkerwork.

Retort Houses and Conveying Machinery.—We also build Retort Houses, Coal and Coke Conveying Machinery. Plans, specifications and estimates cheerfully furnished.

CORRESPONDENCE SOLICITED.

ALL CONTRACTS MADE AS OF ST. LOUIS.



Erecting Gasholder Guide Frame with Electric Steel Traveling Derrick 225 Feet High.

RITER-CONLEY MFG. CO.,

PITTSBURGH.

PLATE AND STRUCTURAL WORK OF EVERY DESCRIPTION.

COMPLETE COAL GAS PLANTS.

CRUSE-KEMPER COMPANY,

Gas Engineers and Builders.

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Western Sales Agent:
HENRY I. LEA, 616 The Rookery, Chicago, Ills.

Pacific Coast Agents:
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R. K. WEHNER, TREASURER

ISBELL-PORTER COMPANY

GAS ENGINEERS & BUILDERS OF GAS WORKS

BENCH WORK

CHARGING AND DISCHARGING MACHINERY

MACKENZIE EXHAUSTERS

PRIMARY AND SECONDARY CONDENSERS FOR FRESH OR SALT WATER

ISBELL VALVES SPECIALS

TAR EXTRACTORS

P.&A. TAR EXTRACTORS FOR WATER GAS

ROTARY AMMONIA SCRUBBERS

SHAVING SCRUBBERS PURIFIERS STREET GOVERNORS

MAIN OFFICE AND WORKS
BRIDGE & OGDEN STREETS
NEWARK, N.J.
ESTABLISHED 1865

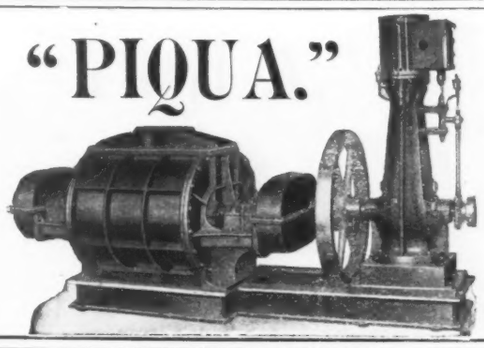
GAS EXHAUSTERS AND BLOWERS.

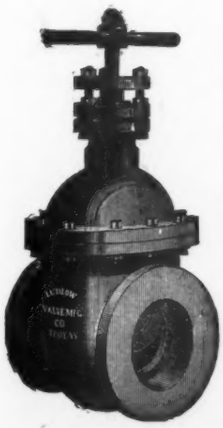
We have a full line of sizes for all standard pressures. The design, material and workmanship is A-1. Prompt Delivery and Reasonable Prices. WHY NOT give us YOUR requirements?

THE PIQUA BLOWER CO.,

PIQUA, OHIO.

"PIQUA."





THE

Ludlow Valve Mfg. Co.,

TROY, N. Y., U. S. A.

Double and Single Gate Valves, ¼" to 72",

—FOR—

Gas, Water, Steam, Oil, Ammonia, Etc.

HOT GAS VALVES A SPECIALTY.

Send for Catalogue.

QUINTARD IRON WORKS CO.,

Foot of Twelfth Street and East River, New York,

BENCH WORK,
CONDENSERS,
SHAVING SCRUBBERS,
CAST IRON FLANGED PIPE,
RIVETED STEEL PIPE.

FREDERICK W. FLOYD, Engineer.

ESTABLISHED 1856.

HENRY MAURER & SON,

Manufacturers of

High Grade Firebrick, Blocks, Tiles,

ETC.,

Works: Maurer, N. J. Office: 420 E. 23d St., N. Y. City.

EVENS & HOWARD FIRE BRICK CO. SAINT LOUIS

"We are sorry the retorts were not satisfactory, but you know every fire-clay manufacturer is liable to strike a bad seam of clay."

Have you ever been given that excuse?

"Yes, our retorts are not as good as they were, but we have been trying to make them dense to avoid breakage on the railroad."

That seems to be a satisfactory excuse---or at least some manufacturers would have you believe it is. It may remind you of the defendant's plea, "I am innocent, but will not do it again."

What view do you take? Do you want good retorts, or bad retorts, with good excuses?

"It is true we have had a lot of benches go down, but just at that time we were firing our kilns in a new way."

That is a familiar excuse, too.

Why should the "mud-man" send you bad retorts, even if he is liable to make them? You pay for the best and ought to get it.

That is how it appears to us.

Write for Estimates on your Resetting Work. GAS WORKS DIVISION: A. S. B. LITTLE, Engineer.

COAL TAR AND AMMONIA,

By GEORGE LUNGE, PH.D. Third and Enlarged Edition.
Price, $15. For Sale by
A. M. CALLENDER & CO., 42 Pine Street, New York City.

"IRONCLAD"

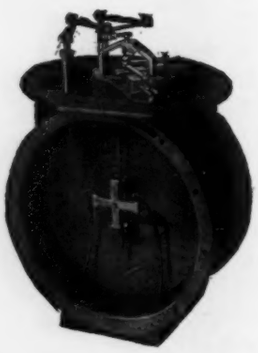
Dry Gas Meters

With Cast-Iron Cases.

Excell all others

for capacity, slight absorption of pressure, simplicity, accuracy and durability. They measure both large and small volumes of either natural or artificial gas with accuracy and, if necessary, may be set up outside, exposed to the weather, without injury. All exposed screws and other parts can be sealed to prevent tampering.

Ask for "Ironclad" Catalogue G-1.



Pittsburg Meter Co.

General Office & Works, East Pittsburg, Pa.

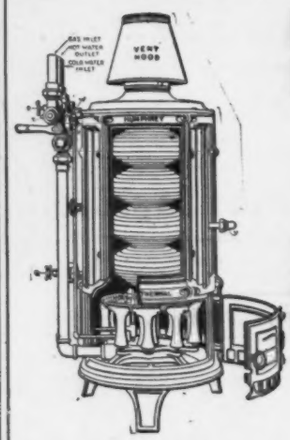
New York Office, 149 Broadway.

Manufacturers of
Gas Meters and Water Meters.

LLOYD CONSTRUCTION COMPANY

GAS APPARATUS.

DETROIT - MICHIGAN



Humphrey Auto-Thermal Instantaneous Water Heaters

Have every known desirable feature helping to efficiency, economy, durability and absolute safety.

FULLY GUARANTEED.
PRICES LOW.
QUALITY AND SERVICE HIGH.

Will you help us sell them?

HUMPHREY CO.,
Kalamazoo Mich., U. S. A.

BINDER

FOR THE

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PRICE, $1.

FOR SALE BY

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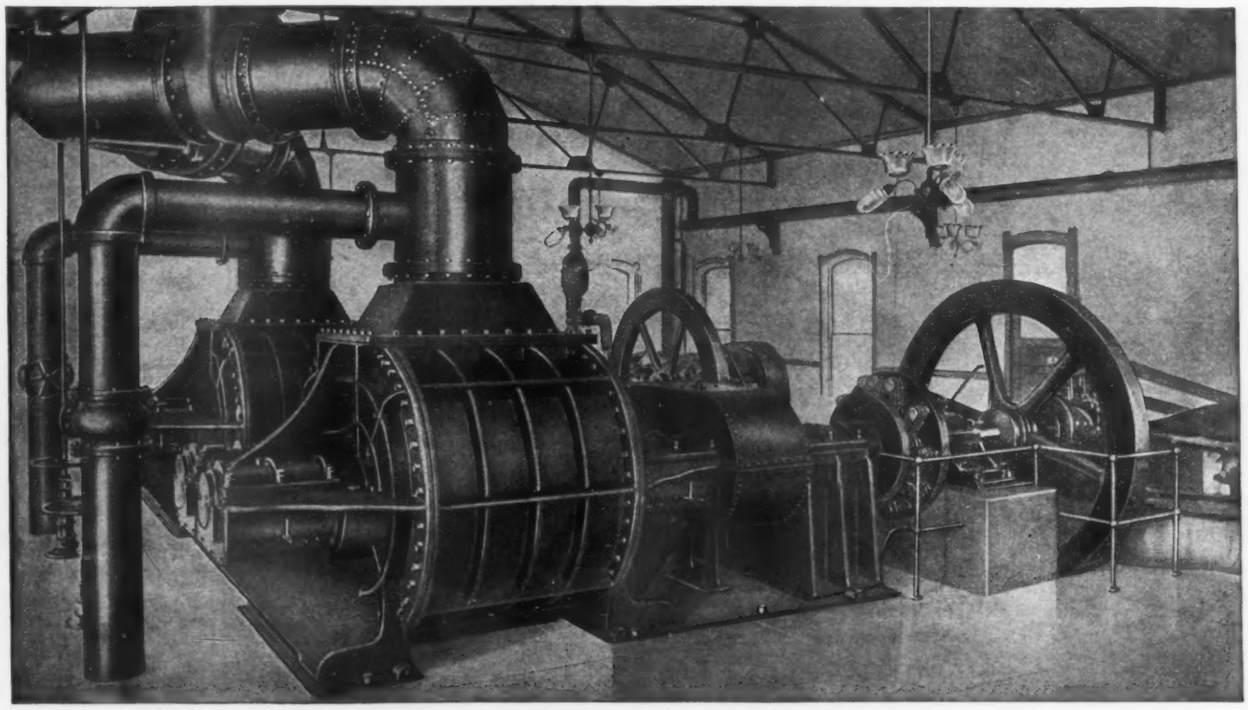
ROOTS' EXHAUSTERS.

An installation of two units, each handling 800,000 cubic feet per hour, under 5 pounds per square inch, installed for the Peoples Gas Light and Coke Company, Chicago, Ills.



P. H. & F. M. ROOTS COMPANY,

HOME OFFICE: Connersville, Ind. **NEW YORK OFFICE: 120-122 Liberty St.** **CHICAGO OFFICE: 1547 Marquette Bldg.**

SEND FOR POCKET EDITION OF "ENGINEERS' PRACTICAL REFERENCE BOOK."

OPEN. **CLOSED.**

Mueller Pipe Jointers.

The skater who clings to strap skates is on the bank fussing with the straps after the skater with clamp skates is on the ice.

The "clamp skate" feature of the Mueller Pipe Jointers is the clamp attached to the jointer, making it possible for the user to put it on, pour the joint and move on to the next while the man with a jointer of separate parts is getting it on the pipe.

TRADE MARK
MUELLER
REGISTERED

H. MUELLER MFG. CO.,

Works and General Offices,
DECATUR, ILL., U. S. A.
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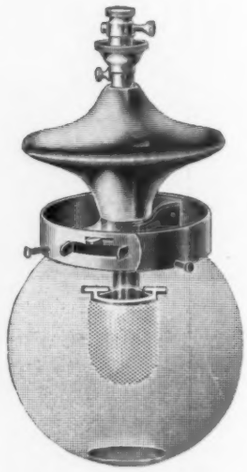
Eastern Division,
NEW YORK, N. Y., U. S. A.
254 Canal St. (cor. Lafayette).

BRAY INVERTED BURNERS.

THEY ARE BETTER BECAUSE

They are Noiseless.
Operate under all pressures, 10-10ths to 60-10ths.
Can be used with By-Pass.
Won't carbonize when turned low.
Bray's Patent Expansion Shade Ring prevents breakage of glassware.
Won't flash back.
A sample will prove this.
Write us for prices.



W. M. CRANE COMPANY,

SOLE U. S. AND CANADIAN AGENTS.

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MANUFACTURERS OF

CAST IRON PIPE AND SPECIAL CASTINGS

FOR WATER AND GAS.

Also, FLANGE PIPE, LAMP POSTS, Etc.

THE BRISTOL COMPANY,

Manufacturers of

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BRISTOL'S

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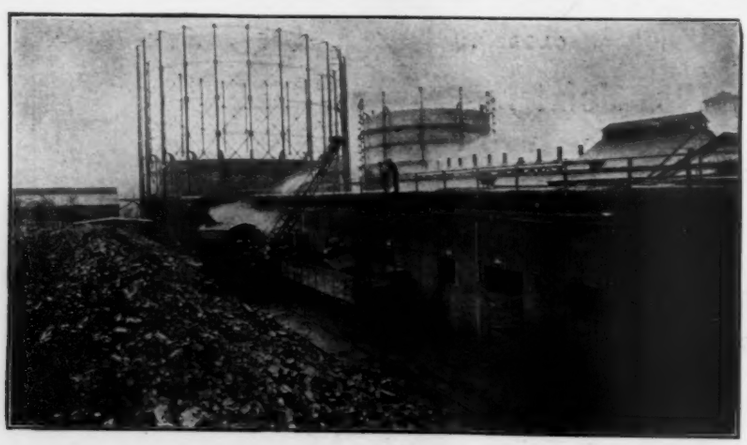
RECORDING PRESSURE GAUGES,
RECORDING THERMOMETERS,
RECORDING AMMETERS,
RECORDING VACUUM GAUGES,
RECORDING VOLTMETERS,
RECORDING WATTMETERS,

AND

THE WM. H. BRISTOL ELECTRIC PYROMETERS AND PATENT SMOKED CHART RECORDERS.

THE BRISTOL CO., WATERBURY, CONN.

New York, BRANCH OFFICES. Chicago,



WRITE for our Catalogue "O" just issued. This Catalogue deals entirely with "Brownhoist" Machinery as used at Artificial Gas Plants for handling coal, coke and other materials rapidly and economically.

THE BROWN HOISTING MACHINERY COMPANY,

Designers and Builders of All Kinds of Hoisting Machinery.

Main Office and Works:
CLEVELAND, O.

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NEW YORK AND PITTSBURG.

PRACTICAL HANDBOOK ON GAS ENGINES, WITH INSTRUCTIONS FOR CARE AND WORKING OF THE SAME,

By G. LIECKFELD, C.E. Translated with Permission of the Author, by GEORGE M. RICHMOND, M.E. Price, $1

For Sale by A. M. CALLENDER & CO., 42 Pine St., New York City.

AMERICAN METER CO.,

NEW YORK, ST. LOUIS, PHILADELPHIA, SAN FRANCISCO, CHICAGO,

Photometrical and Experimental Apparatus.

PUBLIC LIGHTING TABLE.

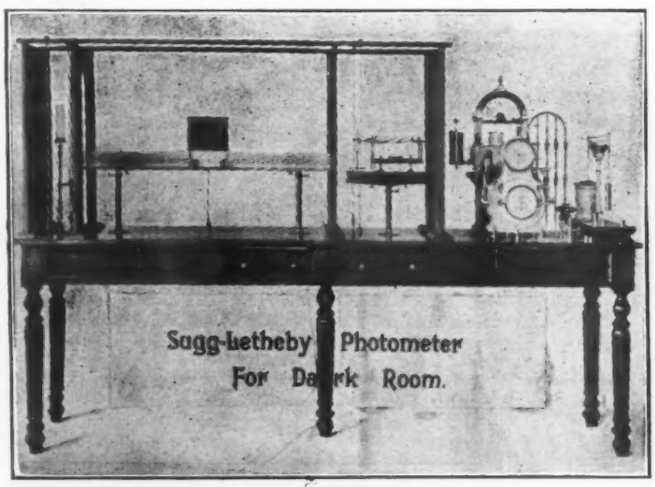
FEBRUARY, 1909.

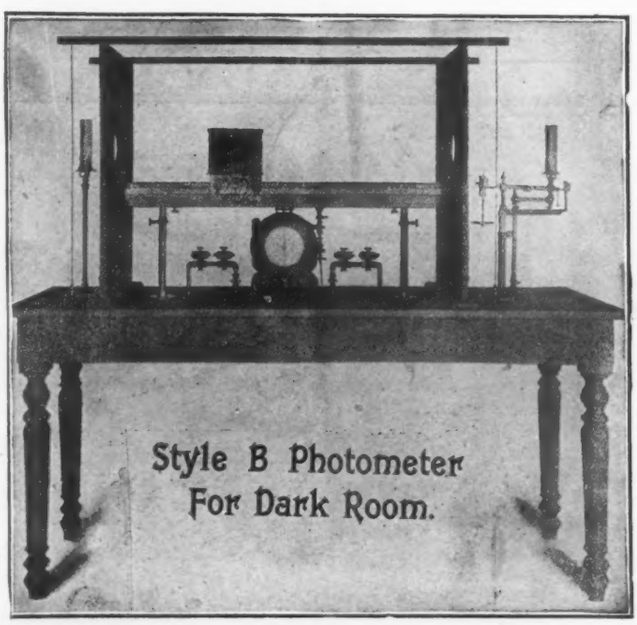
Day of Week.	Date.	Table No. 1. Following the Moon. Light.	Extinguish.
Mon.	1	4.30AM	6.10AM
Tue.	2	5.20	6.10
Wed.	3	No L.	No L.
Thu.	4	No L FM	No L.
Fri.	5	No L.	No L.
Sat.	6	5.50PM	7.40PM
Sun.	7	6.00	8.40
Mon.	8	6.00	9.40
Tue.	9	6.00	10.40
Wed.	10	6.00	11.30
Thu.	11	6.00	12.30AM
Fri.	12	6.00	1.40
Sat.	13	6.00LQ	2.40
Sun.	14	6.10	3.40
Mon.	15	6.10	4.50
Tue.	16	6.10	5.50
Wed.	17	6.10	5.50
Thu.	18	6.10	5.50
Fri.	19	6.10NM	5.50
Sat.	20	6.10	5.50
Sun.	21	6.10	5.40
Mon.	22	6.10	5.40
Tue.	23	6.10	5.40
Wed.	24	10.00	5.40
Thu.	25	11.10	5.40
Fri.	26	12.20AM	5.40
Sat.	27	1.20	5.40
Sun.	28	2.20	5.30

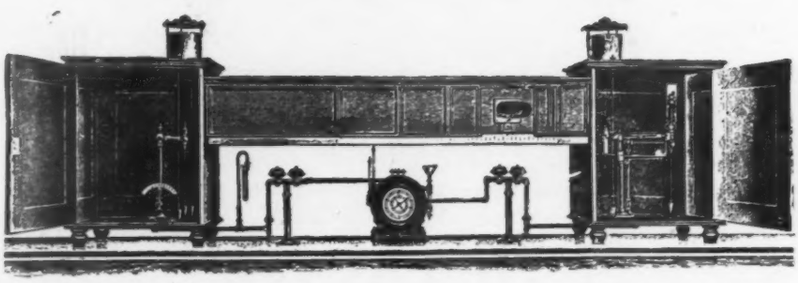
TOTAL HOURS DURING 1909.

By Table No. 1.

	Hrs.Min.
January	212.20
February	183.40
March	173.00
April	151.10
May	144.10
June	138.50
July	145.40
August	160.30
September	180.00
October	201.00
November	216.30
December	233.40
Total, yr.	2140.30







Closed Photometer For Light Room.

CIRCULARS SENT ON REQUEST.

PUBLIC LIGHTING TABLE.

FEBRUARY, 1909.

Day of Week.	Date.	Table No. 2. New York City. All Night Lighting. Complete Lighting in One Hour From Time Given P. M.	Complete Extinguishing in 50 Minutes From Time Given A.M.
Mon.	1	4.47	6.07
Tue.	2	4.47	6.07
Wed.	3	4.47	6.07
Thu.	4	4.47	6.07
Fri.	5	4.57	6.02
Sat.	6	4.57	6.02
Sun.	7	4.57	6.02
Mon.	8	4.57	6.02
Tue.	9	4.57	6.02
Wed.	10	4.57	6.02
Thu.	11	4.57	6.02
Fri.	12	5.07	5.57
Sat.	13	5.07	5.57
Sun.	14	5.07	5.57
Mon.	15	5.07	5.57
Tue.	16	5.07	5.52
Wed.	17	5.07	5.52
Thu.	18	5.07	5.52
Fri.	19	5.17	5.47
Sat.	20	5.17	5.47
Sun.	21	5.17	5.47
Mon.	22	5.17	5.47
Tue.	23	5.17	5.42
Wed.	24	5.17	5.42
Thu.	25	5.17	5.42
Fri.	26	5.22	5.32
Sat.	27	5.22	5.32
Sun.	28	5.22	5.32

TOTAL HOURS DURING 1909.

	Hrs.Min.
January	428.30
February	358.15
March	353.10
April	298.10
May	263.20
June	234.45
July	248.30
August	278.00
September	311.25
October	370.05
November	397.40
December	438.35
	3980.25
Deduct on account of 50 min. extinguishing time	30.25
Total, yr.	3950.00

NEW YORK, 318 West 42d Street. BOSTON, 820 Beacon Building. PHILADELPHIA, Broad and Arch Streets. ST. LOUIS, 712 Roe Building. CHICAGO, 218 La Salle Street. SAN FRANCISCO, 512 Oak Street.

WELSBACH STREET LIGHTING COMPANY

....OF AMERICA....

No. 36.

Controls and Operates the **Welsbach System of Street Lighting,**

Which includes its specially DESIGNED and PATENTED BURNER for PARK LIGHTING exclusively.

Uniformly SUCCESSFUL in 150 Cities and Towns.

By means of the Welsbach System of street lighting the superiority of GAS over electricity for street lighting has been fully demonstrated.

POINTS OF MERIT:

It is { Economical, Attractive, Successful, Up-to-date.

IT LIGHTS THE STREET.

Where there are no gas mains we can furnish an equally good light by our SELF-GENERATING NAPHTHA WELSBACH BURNER, and thereby supply a uniform light in all localities.

Correspondence Solicited from Gas Companies and Others interested in Municipal and Outside Lighting.

No. 38.

Welsbach Junior

THE BIGGEST LITTLE LIGHT IN THE WORLD.

The Welsbach Junior Light is 5 inches high--consists of burner, mantle and chimney--and is attractively boxed in a pasteboard carton.

As its effectiveness and economy become better known the Welsbach Junior will supersede, for universal use in the home, the old-style open flame gas burners.

Showing Welsbach Junior Light used in connection with ordinary glass globe.

Gives 50-Candle Power.

Uses Two Feet of Gas per Hour.

Attaches to Any Gas Fixture.

Completely Hidden from View.

Use your own globe--either gas or electric.

SMALL—EFFICIENT—ECONOMICAL.

Welsbach Company, FACTORIES: Gloucester, N. J. Columbus, O.

Salesrooms in all Leading Cities of the United States.

The United Gas Improvement Company,

Broad and Arch Streets, Philadelphia.

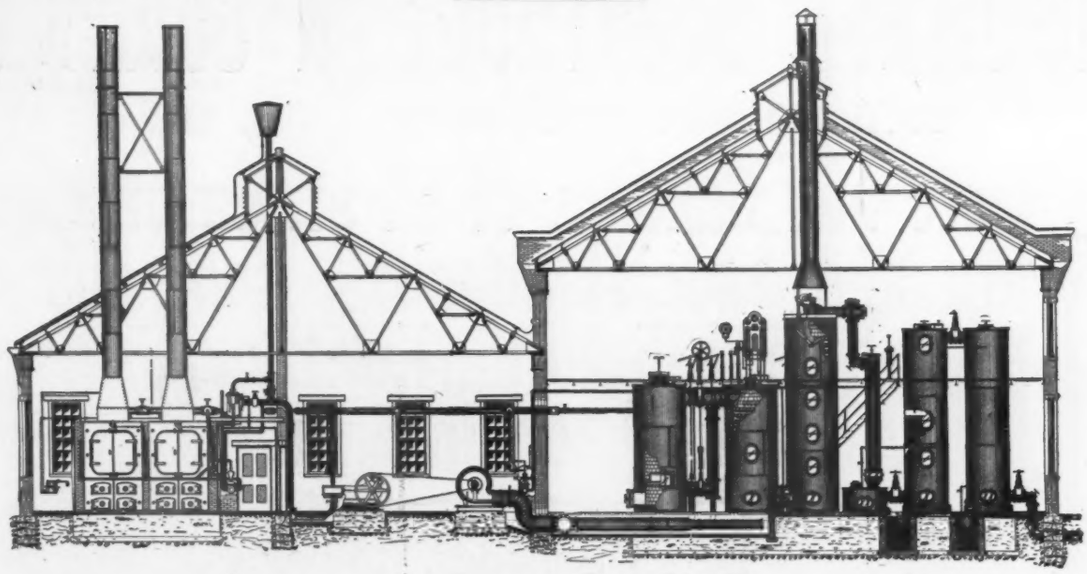
LESSEES, OPERATORS AND BUILDERS OF **GAS WORKS.**

Largest Builders of CARBURETTED WATER GAS PLANT IN AMERICA.

SOLE AMERICAN BUILDERS

OF THE

Standard Double-Superheater Lowe Water Gas Apparatus.



TOTAL SETS INSTALLED TO DECEMBER 31, 1908, ... 690
TOTAL DAILY CAPACITY, TO DECEMBER 31, 1908, ... 558,565,000 cu. ft.

Tar Extractors for Carburetted Water Gas.
Photometrical Apparatus.
Gas Analysis Apparatus.
Recording Gauges.
Straight Standpipe System for Coal Gas Retorts.
Straight Standpipe Cleaners.
Waste Heat Boiler.
Hygrometer.
Meters for Regulating Air and Steam Supply to Water Gas Apparatus.

Established 1858. Incorporated 1890.
CHAS. E. GREGORY, Prest. DAVID R. DALY, V.-Prest. & Treas.
H. D. ABERNETHY, Sec.

J. H. Gautier & Co.

Greene & Essex Streets,
Jersey City, N. J.

MANUFACTURERS OF

CLAY GAS RETORTS, FIRE CLAY TILES, FIRE BRICK and FIRE CLAY SPECIALTIES.

Ground Fire Clay, Fire Sand and Ground Fire Brick in Barrels and Bulk.

SOLE MANUFACTURERS OF THE

FLEMMING GENERATOR GAS FURNACE

ATTENTION.

KRATER-DINAS RETORT CEMENT.

Universally accepted to be the best cement for patching and repairing retorts, making up bench work, etc. Advantages: Powdered form; only mix with water; no waste; too much mixed, apply water and use the next time; *no waste*; adheres very easy; does *not* fall out by decarbonization. We guarantee or take back. Many re-orders and recommendations from America, Germany, France, Belgium, etc. Write for price and testimonials.

STRASSBURGER BROS., Sole Importers
563 Lincoln Avenue, Chicago, Ills.

Modern Machine Shop Construction, Equipment and Management, by OSCAR E. PERRIGO, M.E.

Price, $5. For Sale by
A. M. CALLENDER & CO., 42 Pine St., New York City.

ESTABLISHED 1868.
L. N. RANCKE, Vice-Pres. & Mgr. F. SCHIAFFINO, Sec'y & Treas.

BALTIMORE RETORT & FIREBRICK CO.
BALTIMORE, MD.,

Manufacturers of all Material for the Construction of Coal Gas Benches.

HALF AND FULL DEPTH AND FREE FIRING BENCHES,

All styles of which we have in operation, equipped with the BEST of LATEST IMPROVEMENTS, proving our claim for SUPERIOR QUALITY and EFFICIENCY.

INCLINES—We have in SUCCESSFUL OPERATION benches of Inclined Retorts, MANUFACTURED and ERECTED by us.

WALDO BROS., 102 MILK ST., BOSTON, MASS.,
Agents for New England States.

LARGE FACILITIES—Correspondence Solicited.
RAIL and WATER CONNECTIONS to ALL POINTS.

L. C. HAMLINK, PRES. AUGUST COURT, SEC'Y.

GAS BENCH CONSTRUCTION COMPANY,

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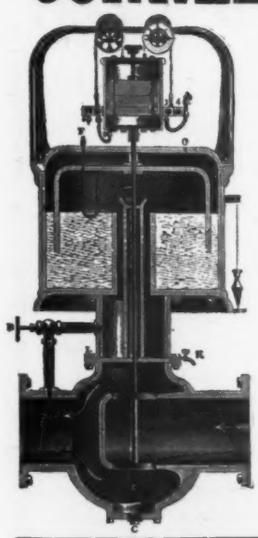

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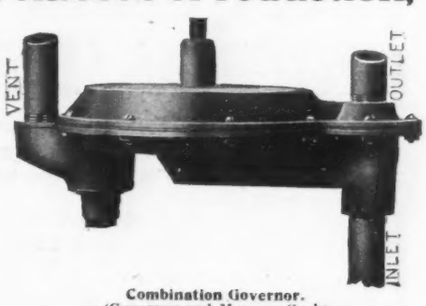

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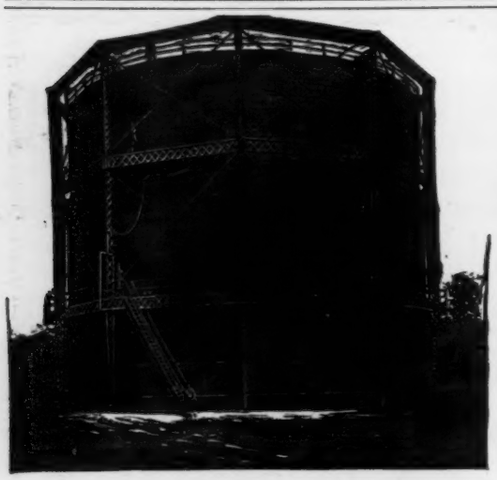

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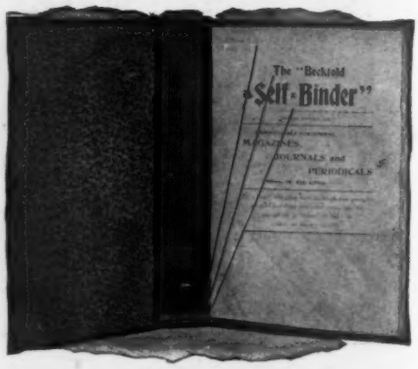

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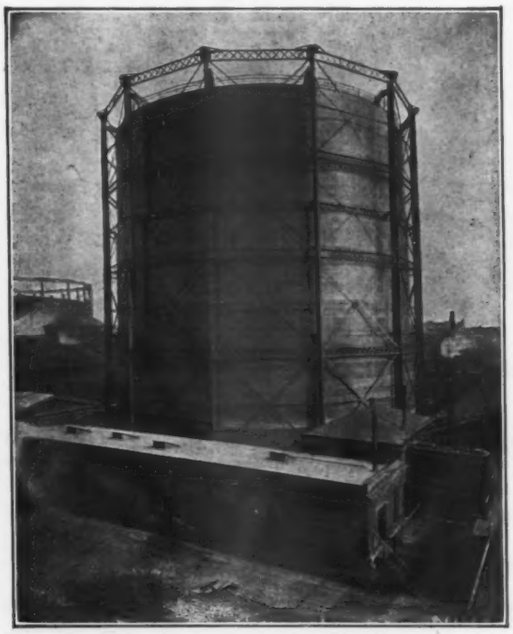

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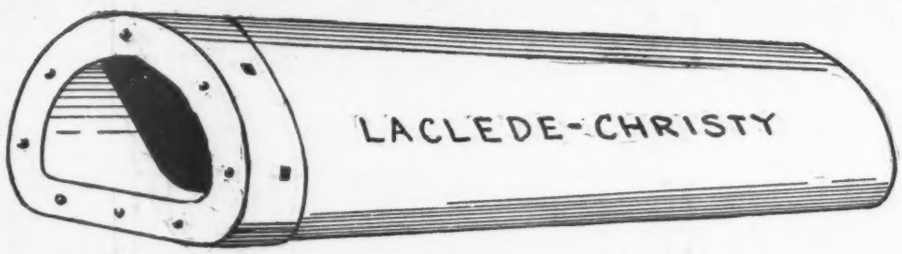

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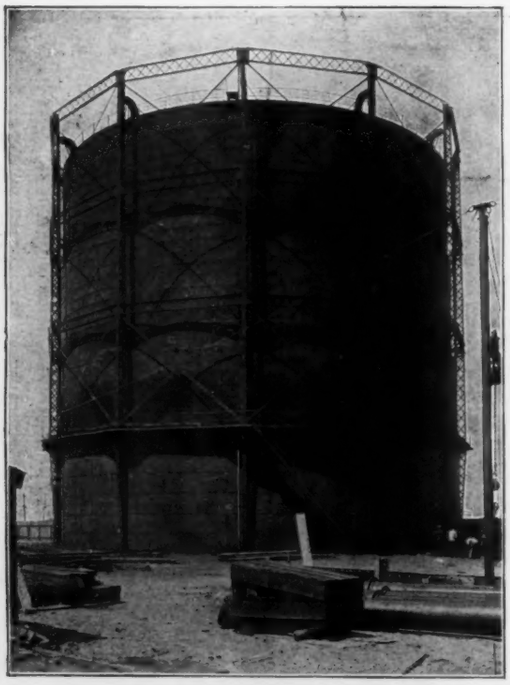

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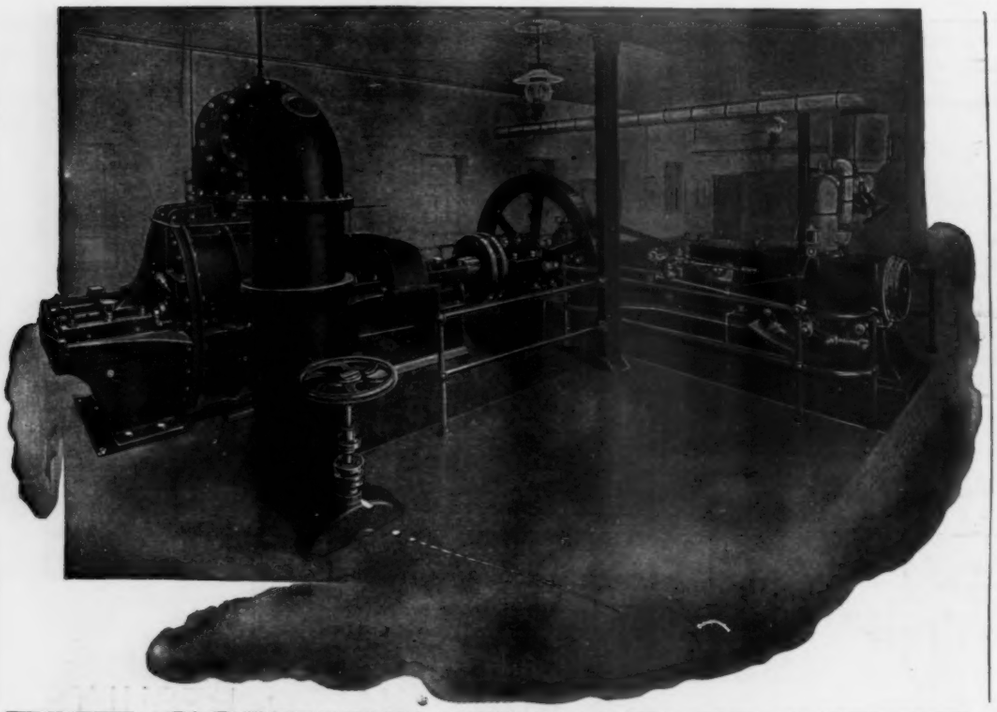

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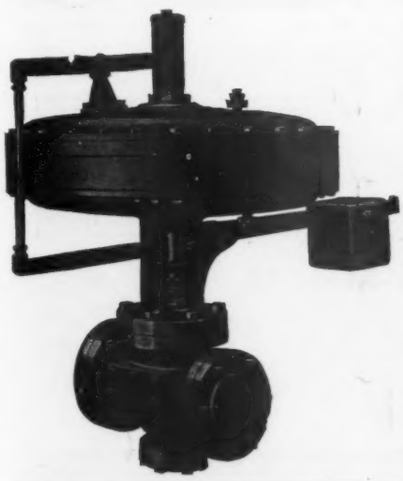

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